

Contract Report (non-refereed)

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COUNTRYSIDE SURVEY 2000

MODULE 2 - SURVEY OF FRESHWATER HABITATS

The Field Survey

**An Interim Report the Department of the Environment, Transport and Regions and to
Scottish Natural Heritage**

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COUNTRYSIDE SURVEY 2000 MODULE 2 - SURVEY OF FRESHWATER HABITATS: THE FIELD SURVEY

CONTENTS

	page
INTRODUCTION	1
OBJECTIVES	1
General objectives	1
Specific objectives	2
WORK PROGRAMME	2
STRATEGY FOR TRAINING AND SURVEYING	3
INDENTIFICATION OF SAMPLING SITES	4
SURVEY PROGRESS	5
Timing of surveying	5
Number of squares surveyed	7
Number of surveys undertaken and sites surveyed	10
FUTURE PLANS	11
ACKNOWLEDGEMENTS	11
REFERENCES	11
TABLES	
Table 1 A comparison of the freshwater status of all squares subject to terrestrial surveying in CS2000	8
Table 2 The number of squares sampled/surveyed for various faunal and floral groups or habitat types.	10
FIGURES	
Figure 1 The number of squares surveyed for freshwater habitats between week 1 (starting on 15 th June) and week 26 (starting on 1 st December)	6
Figure 2 The difference in weeks between the 1998 and 1990 sampling date for squares sampled for macro-invertebrates in both Countryside Surveys.	6
Figure 3 The distribution, by category of the sites with suitable watercourses for aquatic surveys.	9
APPENDICES	
Appendix 1 A list of the samples collected or surveys undertaken in each of the 572 survey squares in CS2000	13

COUNTRYSIDE SURVEY 2000 MODULE 2 - SURVEY OF FRESHWATER HABITATS

The Field Survey

INTRODUCTION

This Interim Report contains details of the implementation of the field survey of freshwater habitats, as part Countryside Survey 2000 (CS2000).

All sampling was undertaken in 1998 by the staff of the Institute of Freshwater Ecology (IFE), based at the laboratories of the Centre of Ecology and Hydrology (CEH) at Wareham, Windermere, Monks' Wood and Edinburgh.

The programme was planned and executed in collaboration with the Institute of Terrestrial Ecology (ITE) who were responsible for terrestrial elements of CS2000. The "Survey of Freshwater Habitats" is Module 2 of CS2000 and is funded by the Department of the Environment, Transport and Regions (DETR) and Scottish Natural Heritage (SNH), in collaboration with the Environment Agency and the Natural Environment Research Council (NERC), of which IFE and ITE are component institutes. Details of the work programme for this module are specified in the research contracts between NERC and each of the three other funding bodies and are presented in more detail in a scoping study prepared for the Environment Agency (Furse, 1998).

Freshwater and terrestrial surveys were each undertaken in the same set of 1km squares, selected in a stratified random manner from the ITE Land Classification of Britain (Bunce *et al.*, 1981).

Freshwater sampling was first included in Countryside Surveys in 1990, when sampling was confined to the collection of macro-invertebrate assemblages (Barr *et al.*, 1993). In that survey, 361 of the 508 squares surveyed by ITE had macro-invertebrate samples collected. The remaining 147 squares either had no suitable watercourse present or all watercourse channels present were dry.

OBJECTIVES

General objectives

The general objectives of CS2000 are:

- ! to record the stock of features associated with the wider countryside, including information on land cover, landscape features, terrestrial and freshwater habitats and species, in 1998
- ! to determine change by comparison with earlier surveys
- ! to maintain and refine the base-line set down in 1990 to ensure the survey data continue to be relevant to current policy needs

- ! to develop the data-base of countryside information following the 1990 survey so that a range of data outputs, relevant to the reporting frameworks used by central government and its agencies and the needs of the research and academic community, can be derived, with the first results available in 2000

Specific objectives

The specific objectives of Module 2, A Survey of Freshwater Habitats, are as follows:

- ! to provide information on the status and distribution of the macro-invertebrate fauna of streams and rivers in Great Britain
- ! to determine and evaluate change by comparison with 1990 survey data relating to the same sites
- ! to determine habitat structure and degree of modification of river corridors
- ! to undertake a limited diagnostic survey of the chemical character of the watercourses to help interpret the results of macro-invertebrate and river habitat surveys
- ! to investigate the relationship between the habitat quality and modification of river corridors, the ecological quality of the watercourse and the condition of the surrounding countryside
- ! to derive indicators relating to status and change in watercourse and river habitat quality

WORK PROGRAMME

Module 2 consists of three components:

- (i) Macro-invertebrate surveys
- (ii) River Habitat Surveys
- (iii) Diagnostic chemical sampling

The agreed work programme was that each component was to be undertaken in each of 508 survey squares from Countryside Survey 1990 that were known, or believed, to have a perennial or intermittent flowing watercourse of an appropriate size (i.e. first to third order). Surveys were also required in each of the thirty additional squares selected by ITE for improving single country estimates, plus replacements for two squares previously sampled on the Isle of Man in 1990, but excluded from the 1998 survey for logistical reasons.

However, IFE were not contracted to survey the 30 extra “upland squares” which were to be surveyed by ITE using additional funding from the Ministry of Agriculture, Fisheries and Food (MAFF).

The survey techniques to be used in Module 2 were standard procedures adopted by the Environment Agency. These are described in a scoping report to the Environment Agency, produced by IFE, on freshwater aspects of CS2000 (Furse, 1998).

STRATEGY FOR TRAINING AND SURVEYING

The original strategy for conducting the freshwater survey was that it would be undertaken by the field surveyors appointed by ITE. The freshwater component of the survey would be carried out during the same visits to the squares as used to undertake terrestrial surveys. Each surveyor was to be fully trained to undertake all elements of the freshwater survey, in addition to their training in terrestrial procedures.

The training required for the freshwater survey was in the collection of macro-invertebrate and chemical samples and the carrying out of River Habitat Surveys (RHS). In order for RHS data to be valid, the Environment Agency has stipulated that all surveyors must first obtain full accreditation in the technique. This requires a minimum of three days training followed by a practical examination, which must be passed. RHS training can only be given by accredited trainers, recognised by the Agency. Macro-invertebrate and chemical sampling techniques require a full day's training including practical sessions complemented by a training video.

It was intended that training in macro-invertebrate and chemical sampling was to be provided by experienced IFE staff. RHS training was to have been provided by accredited IFE and Environment Agency trainers.

In April 1998 it became clear to both ITE and IFE that it was no longer feasible to train the ITE surveyors in freshwater procedures nor for them to carry out the freshwater surveys. This was because of the increase in the number of squares to be surveyed (from 508 in 1990 to 572 in 1998) and because of the increase in the number of types of surveying to be undertaken in each square.

In the light of the new circumstances it was agreed by IFE, ITE, DETR, SNH and the Environment Agency that freshwater surveying would be undertaken by full-time and casual staff of the IFE. It was also agreed that IFE would provide the appropriate training. A condition of the new arrangement was that no IFE staff would visit any 1km square for surveying purposes until ITE had at least started their own surveying. This was to ensure that access to no square was denied to ITE because of a previous failure to gain access by IFE.

Benefits of the decision to have freshwater surveying done by IFE were that:

- ! people with existing RHS accreditation were appointed as surveyors
- ! additional freshwater sampling was undertaken in each square, as recommended by Environment Agency staff in the scoping study (Furse, 1998)

The additional un-contracted sampling undertaken by IFE was of diatoms, aquatic and riparian macrophyte assemblages and chironomid pupal exuviae. Each of these floral and faunal groups can be used to assess the biological condition of watercourses using the

respective techniques of TDI, (Kelly, 1998), MTR (Holmes *et al.*, 1999) and CPET (Wilson, 1996), as outlined in Furse (1998).

Disadvantages of the decision were that:

- ! each survey square was visited separately by the ITE and IFE surveyors
- ! permission to survey in each square was sought twice, first by ITE and then by IFE
- ! the timing of the freshwater training and the start of the surveying was delayed
- ! the pace of freshwater surveying was dictated by the pace achieved by ITE
- ! the freshwater survey was much costlier than originally envisaged in IFE's proposals to the project sponsors

Eight casual and four full-time employees of IFE were trained to undertake freshwater surveying. Each was already accredited as an RHS surveyor and had had previous experience of the collection of water samples for analytical purposes. Their additional training comprised a one-week course organised by IFE and held at its Dorset River Laboratory between 1st and 5th June.

Training included macro-invertebrate and chironomid pupal exuviae sampling, taught by experienced members of IFE's RIVPACS team, diatom sampling, taught by Martyn Kelly of Bowburn Consultants and macrophyte identification, taught by Richard Lansdown of Ardeola Environmental Services.

Two additional IFE staff members later joined the survey teams, largely to ensure double-manning for health and safety purposes. Neither of these surveyors undertook RHS but each assisted with supervised biological sampling after receiving appropriate training from the other surveyors.

Surveyors were each issued with a freshwater survey field handbook (Furse *et al.*, 1998) outlining the techniques used during the study and other issues of relevance.

IDENTIFICATION OF SAMPLING SITES

A total of 361 squares were sampled for aquatic macro-invertebrates in 1990. The plan was to sample each of these again in 1998 for CS2000. In each case the same sampling site sampled in 1990 was to be visited again in 1998. Of the remaining 147 squares, 15 were not sampled in 1990 because the only streams present were greater than third order. It was planned that those 15 squares would not be sampled in 1998 either.

The remaining 132 squares either contained no watercourses in 1990 or all watercourses present in them were dry at the time of the surveyor's 1990 visit. The features of each of the 132 apparently dry squares from 1990 were examined on Ordnance Survey maps at the 1:10,000 and 1:50,000 scale. Any square without a marked watercourse on both maps was presumed to be permanently dry. Eliminating these squares left a total of 42 squares from the

1990 data-set that were presumed to have an intermittent watercourse. Each of these 42 squares was visited for surveying purposes.

The 32 new squares (30 country unit and 2 replacement Isle of Man squares) were examined in the same way and 28 were selected for freshwater surveying on the basis of their having a watercourse marked on both the 1:10,000 and 1:50,000 scale OS maps. In total, therefore, 431 squares were earmarked for freshwater surveying.

In each of the 70 squares that would potentially be sampled for the first time in 1998, the policy for selecting the exact site location was the same as in 1990. Streams and rivers were sampled in preference to drains, ditches and canals, whilst third order watercourses were sampled in preference to second order which, in turn had priority over first order. Successively higher order streams (where 3rd order is higher than second order etc.) are increasingly less frequent than lower orders and this site selection policy therefore tended towards greater equalisation of the number of sites sampled in each order.

The locations of sites in the 70 squares were chosen to maximise the length of River Habitat Survey which could be conducted within the survey square but, within this constraint, to be as close as feasible to the watercourse's exit point from the square. This tended to maximise the amount of the site's catchment which lay within the borders of the square and whose land cover was surveyed by ITE.

SURVEY PROGRESS

Timing of surveying

Sampling began on the 15th June 1998, one week after the completion of the training course. Macro-invertebrate, River Habitat Survey (RHS) and chemical samples were each taken on the single day that each survey square was visited. Replicate macro-invertebrate and chemical samples were taken on the same day but RHS audits, including additional chemical sampling, were undertaken on a later date at selected sites.

In addition to the contracted sampling, diatoms, chironomid pupal exuviae and aquatic and riparian macrophytes (including mosses) were also taken on the same day as the macro-invertebrate sample was collected in a square. Macrophyte samples were collected for Mean Trophic Rank (MTR) analyses and mosses were collected for trace metal analyses.

The sampling was spread fairly evenly between week one (starting on 15th June) and week 24 (starting on 16th November) with just a few squares sampled in weeks 25 and 26 (Figure 1). The pace of surveying was generally dictated by the rate achieved by the terrestrial surveys. The peak of sampling in week 16 followed the release of permission to survey squares in Scotland where sampling had been postponed by ITE. Wet weather and high water levels slowed sampling in November and the last square was surveyed on 1st December, two weeks after the completion of the 1990 surveying on 14th November of that year. Surveying also began earlier in 1990 with the first samples taken on 30th May.

Of the 353 squares surveyed for macro-invertebrates in both 1990 and 1998, 48% were sampled within four weeks of each other in the two years (Figure 2). The average difference in calendar day number that the 1990 sample was taken and the calendar day number that the 1998 sample was collected was 37. However, because some squares were sampled earlier in

1998 than 1990 and others sampled later in 1998 than 1990 surveying in the latter year was, on average, 16 days later. This resulted from i) the later start and ii) the need to follow ITE.

Figure 1 The number of squares surveyed for freshwater habitats between week 1 (starting on 15th June) and week 26 (starting on 1st December)

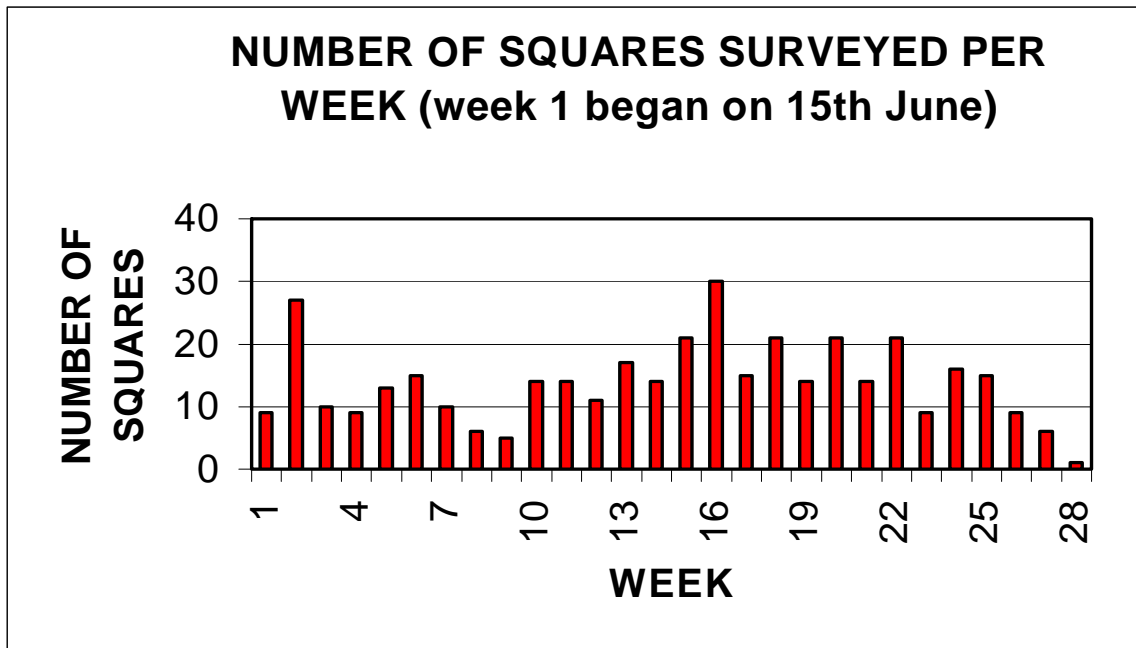
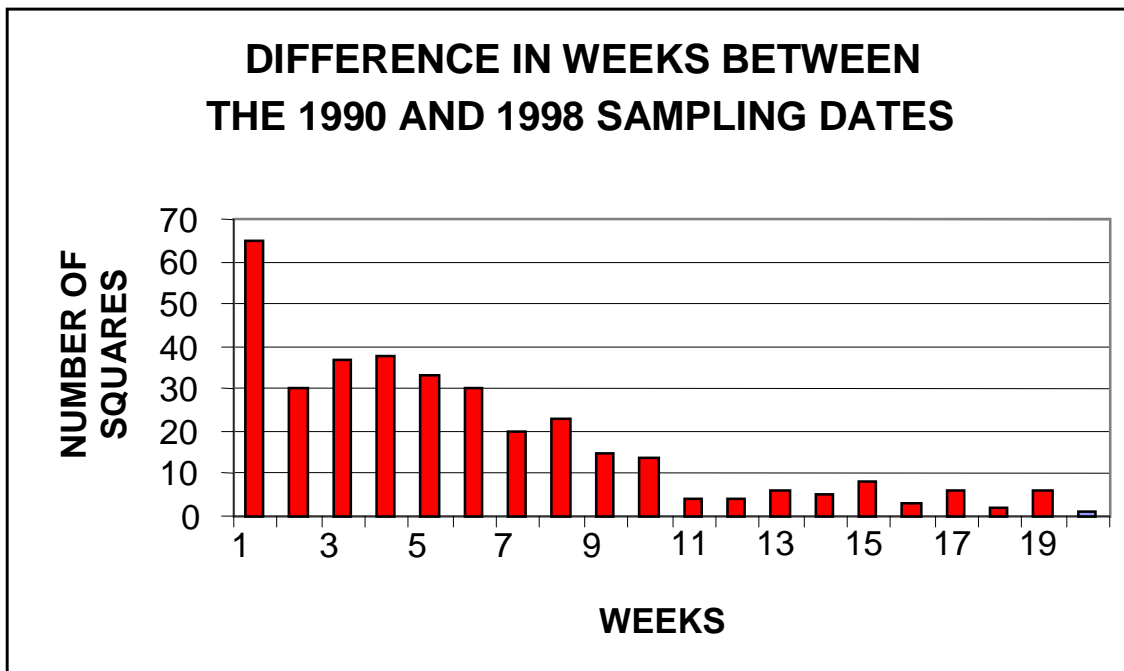


Figure 2 The difference in weeks between the 1998 and 1990 sampling date for squares sampled for macro-invertebrates in both Countryside Surveys.



Most sites are surveyed in the same calendar season and allow straightforward comparison of biological quality through use of RIVPACS (Wright *et al.*, 1993). However, the latest version of RIVPACS, (RIVPACS III+) also allows statistical comparison between samples collected in different seasons (Clarke *et al.*, 1999). Variation in species richness between seasons is small but the extensive IFE species level database will provide the background for understanding and compensating for these differences.

Number of squares surveyed

Initially 568 squares were considered by ITE for inclusion in CS2000, including thirty new squares selected to improve single country statistics and thirty selected to obtain improved information on upland squares. However, MAFF made no funding available for freshwater sampling in the additional upland squares and these were excluded from Module 2. As described in the site selection procedures, only 431 of the remaining 538 were suitable for freshwater surveying. Some late substitution of squares by ITE, to compensate for refusal of access, led to the total number of squares considered rising to 572 (Appendix 1), of which 432 had suitable watercourses for River Habitat Surveys (Figure 3).

The 572 squares considered for surveying by ITE were divided into the following categories for the purposes of the freshwater survey:

Flowing watercourse suitable for biological sampling and RHS:	WET
Dry watercourse suitable for River Habitat Survey only*	DRY
Abandoned square with a suitable watercourse for sampling	ABANDONED
Square without any suitable watercourses for sampling	NO STREAM
Square excluded from freshwater survey for various reasons [#]	EXCLUDED

* River Habitat Surveys were carried out at dry sites in 1998 only

^H An abandoned square is one in which access is wholly or substantially denied by landowners

[#] Exclusions were due to either contractual reasons (i.e. MAFF upland squares) or because the squares were late substitutions in the 1998 terrestrial survey whose selection by ITE was not notified to IFE.

A comparison of the 1998 and 1990 freshwater survey programmes shows the number of squares that fall into each combination of categories for the two survey years (Table 1).

The table shows that 425 of the 432 squares containing suitable watercourses were successfully sampled. Of the remaining seven squares, six were abandoned because of access difficulties. These were squares 162, 325 and 1220 in England and Wales and squares 1035, 1142 and 1159 in Scotland. The seventh square (176) was in Wales. It contained a single stream which was flowing in 1990 but which had since been land-filled and no longer existed.

In all, 353 squares were sampled in the same locations in 1998 and 1990 but twenty-three squares that had a suitable flowing watercourse in 1998 had those watercourses dry in 1990. Conversely, just three squares had a flowing watercourse in 1990 but were effectively dry in 1998. Seventeen watercourses in squares that were entirely dry in 1990 were still dry in 1998 (Table 1).

Table 1 A comparison of the freshwater status of all squares subject to terrestrial surveying in CS2000.

1998 STATUS	1990 STATUS	NUMBER OF SQUARES
WET	WET	353
WET	DRY	23
WET	NO STREAM	0
WET	ABANDONED	0
WET	EXCLUDED	29
DRY	WET	3
DRY	DRY	17
DRY	NO STREAM	0
DRY	ABANDONED	0
DRY	EXCLUDED	0
NO STREAM	WET	1
NO STREAM	DRY	0
NO STREAM	NO STREAM	103
NO STREAM	ABANDONED	0
NO STREAM	EXCLUDED	4
ABANDONED	WET	4
ABANDONED	DRY	2
ABANDONED	NO STREAM	0
ABANDONED	ABANDONED	0
ABANDONED	EXCLUDED	0
EXCLUDED	WET	0
EXCLUDED	DRY	0
EXCLUDED	NO STREAM	0
EXCLUDED	ABANDONED	0
EXCLUDED	EXCLUDED	33

Figure 3 **The distribution, by category of the sites with suitable watercourses for aquatic surveys. Macro-invertebrate sampling and River Habitat Survey undertaken (!). River Habitat Survey only undertaken (#). Site abandoned because of refused access (∇). Dry squares are not shown on this map because their grid references are not readily available.**

Numbers of surveys undertaken and samples collected

Wherever suitable watercourses were present and accessible, biological and chemical sampling and/or RHS surveying were always undertaken (Table 2). Thus, each of the 425 squares surveyed had RHS carried out. Of these, 405 were also sampled for macro-invertebrates (compared with 361 squares sampled for macro-invertebrates in 1990), three were dry in 1998 although they contained a flowing stream in 1990 and 17 had dry watercourses in both 1990 and 1998 (Table 1).

Diatom samples were taken in all but one of the squares where macro-invertebrate sampling took place but eleven flowing water-sites could not be sampled for chironomid pupae because of the lack of suitable surface flotsam. Mean Trophic Ranking (MTR) surveys of aquatic and marginal macrophytes took place in a few moist streams with no flowing water.

Replicate macro-invertebrate sampling took place at 10.6% of sites, just above the contract target. However, only 5.9% of sites were audited for RHS, below the target of 7%. This was because of the pressure on experienced staff to complete the main survey programme during 1998.

Table 2 The number of squares sampled/surveyed for various faunal and floral groups or habitat types.

SAMPLE TYPE	No. SQUARES SAMPLED
Main invertebrate sample	405
Replicate invertebrate sample	43
Main RHS survey	425
RHS audit	25
Main chemical sample	405
Replicate chemical sample	38
Main diatom sample	404
Replicate diatom sample	42
Main chironomid pupal exuviae sample	394
Replicate chironomid pupal exuviae sample	39
Mean Trophic Ranking (macrophyte) survey (MTR)	413

FUTURE PLANS

IFE has no plans to attempt to survey those six squares that could not be accessed in 1998.

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Appendix 1 A list of the samples collected or surveys undertaken in each of the 572 survey squares in CS2000

Square	Watercourse name	Site name	Main invertebrate sample	Replicate invertebrate sample	Main diatom sample	Replicate diatom sample	Main exuvia sample	Replicate exuvia sample	Main RHS survey	Audit RHS survey	MTR survey	Main water sample	Replicate water sample
2	Un-named	Kemyel	+		+		+		+		+	+	
6	Marazion/Red River	Towednack	+		+		+		+		+	+	
10													
11													
13	Un-named	Trelion	+		+		+		+		+	+	
15	Un-named	Sclerder Abbey	+		+				+		+	+	
17	Un-named	Coombe Farm	+		+		+		+		+	+	
18	Un-named	Stokenbridge	+		+		+		+		+	+	
19	Un-named	Stone Farm	+		+		+		+		+	+	
22													
24	Un-named	Treleathick	+		+		+		+		+	+	
25	Un-named	Westcott	+		+				+		+	+	
27													
30													
34													
35	Bovey	Lakeland	+		+				+		+	+	
37	Un-named	Staplake Mount	+		+		+		+		+	+	
38	Not yet allocated	Not yet allocated							+				
40													
43	Un-named	Nodewell	+		+		+		+	+	+	+	
47	Un-named	Trefrouse	+		+		+		+		+	+	
53	Un-named	Shermans Farm	+		+		+		+		+	+	
55	Char	Stoke Mill Farm	+		+		+		+		+	+	
56	Hooke	Toller Fratrum	+		+		+		+	+	+	+	
57													
61	Un-named	Vicars Hill	+		+		+		+		+	+	
63													
64													
68													
71	Un-named	Youldon Farm	+		+		+		+			+	
73	Un-named	Rashleigh Barton	+	+	+	+	+	+	+		+	+	+
75	Un-named	Lower Warnicombe	+	+	+	+	+	+	+		+	+	+
76	Un-named	Lickham Bottom	+		+		+		+		+	+	
77	Un-named	Beetham	+		+		+		+		+	+	
83	Huckles Brook	Odgens	+		+		+		+		+	+	
86	Martin's Corner Stream	Martin's Corner	+		+		+		+		+	+	
87													
89													
90	Un-named	Tottington Sands	+	+	+	+	+	+	+		+	+	+
91													
93	Un-named	Gardeners Farm	+	+	+	+	+	+	+		+	+	+
99	Un-named	Tennacott	+		+		+		+		+	+	

Square	Watercourse name	Site name	Main invertebrate sample	Replicate invertebrate sample	Main diatom sample	Replicate diatom sample	Main exuviae sample	Replicate exuviae sample	Main RHS survey	Audit RHS survey	MTR survey	Main water sample	Replicate water sample
101	Un-named	Beere Farm	+		+		+		+		+	+	
102	Un-named	Skilgate	+		+		+		+		+	+	
104	Un-named	Walford	+		+		+		+		+	+	
108													
109													
110	Un-named	Alderbury	+		+		+		+		+	+	
111	Un-named	Mottisfont Abbey	+		+		+		+		+	+	
112													
116	Un-named	Rowner Farm	+	+	+	+	+	+	+		+	+	+
120	Not yet allocated	Not yet allocated							+		+		
121	Un-named	Lamberden	+		+		+		+		+	+	
125	Un-named	Challacombe Common	+		+		+		+		+	+	
127	Un-named	Black Ball	+		+		+		+		+	+	
128													
129	Un-named	Pawlett Hams	+		+		+		+		+	+	
130	Un-named	Westhay	+		+		+		+		+	+	
131	Un-named	North Town	+		+		+		+		+	+	
135													
138													
143	Eden Brook	Jacksbridge Farm	+		+		+		+		+	+	
145	Un-named	Moatlands	+		+		+		+		+	+	
146	Hammer Stream	Waterman Quarter	+		+		+		+		+	+	
147													
152													
155	Un-named	Biss Farm	+	+	+	+	+	+	+		+	+	+
160	Un-named	Hill End Farm	+		+		+		+		+	+	
161	Blackwater	Hartfordbridge	+		+		+		+		+	+	
162													
164													
176	Rhosog Fach Reen	Lamby											
179	Un-named	Toghill Farm	+		+		+		+		+	+	
180	Un-named	Stowell Farm	+		+		+		+		+	+	
182													
184													
188													
189	Not yet allocated	Not yet allocated							+		+		
191													
193													
195	Un-named	Studd Hill	+	+	+	+	+	+	+	+	+	+	
199													
202	Nant Cwm Philip	Cwm Philip	+	+	+	+	+	+	+		+	+	
203	Un-named	Tynewydd	+		+		+		+	+	+	+	
204	Ffynon Wen	Pen-y-Groes	+		+		+		+		+	+	
205	Un-named	Ynysyfro	+		+		+		+	+	+	+	

Square	Watercourse name	Site name	Main invertebrate sample	Replicate invertebrate sample	Main diatom sample	Replicate diatom sample	Main exuviae sample	Replicate exuviae sample	Main RHS survey	Audit RHS survey	MTR survey	Main water sample	Replicate water sample
206	Magor Pill Reen	Magor	+		+		+		+		+	+	
208	Ladden Brook	Frith Farm							+				
209	Avon	Bransdown Hill	+		+		+		+		+	+	
212	Un-named	Kingston Lisle	+		+		+		+		+	+	
214													
215													
221	Un-named	Great Berry	+		+		+		+		+	+	
224	Un-named	Pwllcrochan	+		+		+		+		+	+	
225													
230	Clydach	Vale of Neath	+		+		+		+		+	+	
232	Bargod Rhymney	Deri	+		+		+		+		+	+	
234	Pill Brook	Rhyd-y-Maen	+		+		+		+		+	+	
241													
242	Un-named	Great Milton	+		+		+		+		+	+	
244													
251													
258	Un-named	Clearbrook	+		+		+		+		+	+	
260	Haffes	Cwm Haffes	+		+		+		+		+	+	
261													
263	Un-named	Deri-Fach	+		+		+		+		+	+	
266			+		+		+		+		+	+	
269	Windrush	New Bridge	+		+		+		+		+	+	
270													
273	Fleet Marston Brook	Lower Farm	+		+		+		+		+	+	
279	Un-named	Ford End							+		+		
281													
284	Un-named	Tremynydd Fawr	+		+		+		+		+	+	
286	Un-named	Waun-Maes	+		+		+		+		+	+	
291	Y Cwm	Halfway	+	+	+	+	+	+	+	+	+	+	+
292													
293													
294	Un-named	Olchon Court	+	+	+	+	+	+	+	+	+	+	+
295	Un-named	The Vallets	+		+		+		+		+	+	
296													
300	Un-named	Three Ashes Stud	+		+		+		+		+	+	
301													
305													
307													
308	Not yet allocated	Not yet allocated							+		+		
310									+		+	+	
311	Un-named	Star Stile	+		+		+		+		+	+	
316	Nant Arberth	Trewindsor	+		+		+		+		+	+	
317	Un-named	Blaenafon	+		+		+		+		+	+	
319													

Square	Watercourse name	Site name	Main invertebrate sample	Replicate invertebrate sample	Main diatom sample	Replicate diatom sample	Main exuviae sample	Replicate exuviae sample	Main RHS survey	Audit RHS survey	MTR survey	Main water sample	Replicate water sample
320													
321	Un-named	Banc y Cwm	+		+		+		+		+	+	
322													
324	Un-named	Bache Wood	+		+		+		+		+	+	
325													
326	Un-named	Stony Cross	+		+		+		+		+	+	
328	Un-named	Lenchwick Coppice	+	+	+	+	+	+	+		+	+	+
331	Cherwell	Prescote Manor	+		+		+		+		+	+	
333	Un-named	Pindonend Cottage	+		+		+		+		+	+	
335													
336	Un-named	Sutton	+		+		+		+		+	+	
339													
341	Brett	Chelsworth	+		+		+		+		+	+	
347	Camddwr	Fullbrook	+		+		+		+	+	+	+	
348	Arban	Carreg Wen Fawr	+		+		+		+			+	
349													
350													
351	Un-named	Evenjobb	+	+	+	+	+	+	+	+	+	+	+
352													
353	Cheaton Brook	Quinton	+		+		+		+		+	+	
354													
355	Un-named	Salwarpe	+	+	+	+	+	+	+		+	+	+
357	Un-named	Cutler's Farm	+		+		+		+		+	+	
358	Un-named	Tachbrook Mallory	+		+		+		+		+	+	
359	Not yet allocated	Not yet allocated							+		+		
364	Gallow Brook	Monks Hardwick	+		+		+		+		+	+	
366	Bottisham Lode/Quy Water	Anglesey Abbey	+		+		+		+	+	+	+	
367													
368													
369													
377	Nant y Gledryd	Cennant	+		+		+		+		+	+	
378	Diliw Fechan	Diliw	+	+	+	+	+	+	+		+	+	+
380	Migram's Brook	Pwll Tew	+		+		+		+		+	+	
381													
383	Benson's Brook	Warhill Farm	+		+		+		+		+	+	
384													
385	Hoo Brook	Bellington Farm	+		+		+		+		+	+	
391													
393	Un-named	Cockbrook Farm	+		+		+		+		+	+	
395	Cranbrook Drain	Colnefields	+		+		+		+	+	+	+	
396													
398													
400													
402													

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405	Un-named	Bugeilyn	+		+		+		+		+	+	
406													
407													
408	Un-named	Meadows	+		+		+		+		+	+	
409	Un-named	Callow Hollow	+		+		+		+		+	+	
411													
413	Tame	Park Farm	+	+	+	+	+	+	+		+	+	+
414													
418													
419	Not yet allocated	Not yet allocated							+				
420	Un-named	Fotheringhay	+		+		+		+	+	+	+	
421	Un-named	Farcet Fen	+		+		+		+	+	+	+	
423	Old Croft River	Welney	+		+		+		+	+	+	+	
424													
428	Broome Beck	Topcroft	+		+		+		+		+	+	
431	Un-named	Abergynolwyn	+		+		+		+		+	+	
432	Un-named	Coed Glyn	+		+		+		+		+	+	
433	Gam	Dolwen	+		+		+		+		+	+	
436	Tag's Gutter	Sibberscote Manor	+		+		+		+		+	+	
438	Un-named	The Wyke	+		+		+		+		+	+	
443	Soar	Busky Farm	+		+		+		+		+	+	
447													
449									+	+		+	
450	Rand's Drain	Pedlar Meadow	+		+		+		+		+	+	
451	Un-named	Playters	+		+		+		+		+	+	
457	Un-named	Fishers Marshes	+		+		+		+		+	+	
459	Un-named	Llanbedr							+		+	+	
460	Cwm-Ilechen	Mynydd Cwm-Mynach	+		+		+		+	+	+	+	
461	Gamlan	Esgair-Gawr	+		+		+		+		+	+	
462	Nant y Ffynnant	Moel y Bryn	+		+		+		+		+	+	
463	Un-named	Bwlch-y-Graig	+		+		+		+	+	+	+	
464													
465													
467	Meese	Pickstock	+	+	+	+	+	+	+		+	+	+
471	Un-named	Greysich Farm	+		+		+		+		+	+	
472													
475	Witham	Motherford'S Spring	+		+		+		+		+	+	
477	South Drove Drain	Spalding	+		+		+		+	+	+	+	
478	Not yet allocated	Not yet allocated							+	+	+		
480													
481													
482	Un-named	Elmham House	+		+		+		+		+	+	
484													
487	Un-named	Porthysgadan	+		+		+		+		+	+	

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489													
491	Un-named	Amnodd-Wen	+		+				+		+	+	
492													
493													
494	Ceiriog	Pont-Eaen	+	+	+	+	+	+	+		+	+	+
496	Un-named	Prees Higher Heath	+		+		+		+		+	+	
501	Mackworth Brook	Markeaton	+		+		+		+		+	+	
502													
503	Polser Brook	Holme Lane	+	+	+		+		+		+	+	+
507	Eaudyke	Bicker	+	+	+	+	+	+	+		+	+	+
508													
510													
513	Mundesley Beck	Gimtingham Hall	+		+		+		+		+	+	
517	Ceunant Ty'n-y-ddol	Foel Goch	+		+		+		+		+	+	
518	lwrch	Rhydlanfair	+		+		+		+	+	+	+	
521	Gwenfro	Gegin	+		+		+		+		+	+	
532	Not yet allocated	Not yet allocated							+		+		
533	Not yet allocated	Not yet allocated							+		+	+	
534	Not yet allocated	Not yet allocated							+		+		
535	Hobhole Drain	Bank Farm	+		+		+		+		+	+	
539	Un-named	Bryn-Gwian	+		+		+		+	+	+	+	
540	Un-named	Pengwern	+		+		+		+	+	+	+	
541	Un-named	Fron-Gelyn	+	+	+	+	+	+	+		+	+	+
543													
544													
545													
546	Dighill Brook	Pastures	+		+		+		+		+	+	
548													
549	Hipper	Cat Hole	+		+		+		+		+	+	
551													
552	Un-named	Mill Farm	+	+	+	+	+	+	+		+	+	
555	Un-named	Old Woodhall			+		+		+		+	+	
558	Un-named	Llaingoch	+		+		+		+		+	+	
561													
563	Un-named	Hafod-Llwyn	+		+		+		+		+	+	
565	Un-named	Carnsdale Farm							+				
569	Dean	Kingstreet	+		+		+		+		+	+	
570													
572	Sheaf	Ecclesall Wood	+		+		+		+		+	+	
573													
575	Un-named	Maumhill Wood	+		+		+		+		+	+	
576	Un-named	Cold Harbour	+		+		+		+		+	+	
577	Un-named	Wickenby Wood	+		+		+		+		+	+	
579	Not yet allocated	Not yet allocated							+		+		

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585													
587													
588	Un-named	Harden Moors	+		+		+		+		+	+	
589	How Brook	Howbrook	+		+		+		+		+	+	
591													
592	Un-named	Graizelound	+		+		+		+		+	+	
594													
595													
600													
602	Redbrook Clough	Hey Green	+		+		+		+		+	+	
603	Range Dyke	Farnley Tyas	+		+		+		+		+	+	
604													
607													
609													
610	Not yet allocated	Not yet allocated							+		+		
617	Black Clough	Dodbottom Wood	+		+		+		+		+	+	
618													
619	Spenn Beck	Oakenshaw	+		+		+		+		+	+	
624	Un-named	Elloughton	+		+		+		+		+	+	
625													
626	Burstwick Drain	Stud Farm	+		+		+		+		+	+	
627	Un-named	Intack Farm	+		+		+		+		+	+	
631	Bashall Brook	Clitheroe	+		+		+		+		+	+	
632	Un-named	Holly Bush Farm	+		+		+		+		+	+	
634	Mire Beck	High Royds	+		+		+		+		+	+	
637	Stillingfleet Beck	Escrick	+		+		+		+		+	+	
640	Un-named	Tickton Grange	+		+		+		+		+	+	
642	Un-named	Trailholme	+		+		+		+		+	+	
643													
644	Hodder	Holme House Laithe	+		+		+		+		+	+	
645													
646	Pitshaw Dike	Brass Castle	+		+		+		+		+	+	
647													
648	The Foss	Scotton Banks	+		+		+		+			+	
653	Un-named	Cattleholmes	+		+		+		+		+	+	
654	Un-named	Low Skirlington							+				
656	Un-named	Kent Viaduct	+		+		+		+		+	+	
657	Un-named	Locka Farm	+		+		+		+		+	+	
658													
659	Un-named	Dawson Close	+		+		+		+		+	+	
661													
662													
666													
669													

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671	Winster	Stock Moss	+		+		+		+		+	+	
672	Un-named	u/s Hood Tarn	+		+		+		+		+	+	
673	Un-named	Backstonegill	+	+	+	+	+	+	+		+	+	+
674	Un-named	Yorburgh	+		+		+		+		+	+	
676													
678													
679	Riccal/Bonfield Gill	Riccal Dale	+	+	+	+	+	+	+		+	+	+
681													
682													
684	Mecklin Beck	Burnt House	+		+		+		+		+	+	
689	Watendlath Beck	Caffell Side	+		+		+		+		+	+	
691	Not yet allocated	Not yet allocated							+		+		
692	Mire Sike	New Hall	+		+		+		+		+	+	
693													
694													
695													
698													
699	Easington Beck	Dalehouse Plantation	+		+		+		+		+	+	
701													
702	Un-named	Bysbie Cottage	+	+	+	+	+	+	+		+	+	+
703	Wythegill Syke	Siddick	+		+		+		+		+	+	
704	Un-named	Wood Hall Farm	+		+		+		+		+	+	
705	Hause Gill	Great Cockup	+		+		+		+		+	+	
707	Un-named	High Barn	+		+		+		+		+	+	
708	Un-named	Knock Fell	+		+		+		+		+	+	
710													
713	Un-named	High Tunstall	+		+		+		+		+	+	
716	Barmullan Burn	Blairshinnoch	+		+		+		+		+	+	
718	Un-named	The Lake	+		+		+		+		+	+	
721	Speet Gill	Bushgillhead	+		+		+		+		+	+	
723	Croglin Water	Croglin Bridge	+		+		+		+		+	+	
724													
726	Un-named	Cross Rigg	+		+		+		+		+	+	
727	Peth Burn	Lanchester	+		+		+		+		+	+	
729													
730	Un-named	Meikle Galdenoch	+		+		+		+		+	+	
732	Drumpail Burn	Carscreugh	+		+		+		+		+	+	
733	Un-named	Barraer	+		+		+		+		+	+	
735	Tarff Water	Upper Lairdmannoch	+		+		+		+		+	+	
737	Un-named	Holehouse	+		+		+		+		+	+	
741	Castle Beck	Denton Foot	+		+		+		+		+	+	
743	Un-named	Yellow Rigg	+	+	+	+	+	+	+		+	+	
744	Brockhole Burn	High Barns	+	+	+	+	+	+	+		+	+	+
748	Haw Burn	Laggish	+		+		+		+		+	+	

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751	Shirmers Burn	Ewanston	+		+		+		+		+	+	
753	Un-named	Marchfield	+	+	+	+	+	+	+		+	+	+
756	Loup Sike	Shielingmoss	+		+		+		+		+	+	
757													
758	Blacka Burn/Butthill Sike	Felecia Crags	+		+		+		+		+	+	
761	Pont	Carter Moor	+		+		+		+		+	+	
763	Balcreuchan Burn	Little Bennane	+		+		+		+		+	+	
765	Water of Minnoch/Pilnyark Burn	Shalloch	+		+		+		+		+	+	
766	Garryhorn Burn	Craighit	+		+		+		+		+	+	
769	Back Sike	Gubhill	+		+		+		+		+	?	
770	Dalmakethar Burn	Belshand Knowe	+		+		+		+		+	+	
772	Un-named	Mid Height	+		+		+		+		+	+	
773	Bells Burn	Larriston Fells	+		+		+		+		+	+	
774	Un-named	Highfield	+		+		+		+		+	+	
775	Un-named	Woodhill	+		+		+		+		+	+	
776													
777	Un-named	Fenrother	+		+		+		+		+	+	
781	Un-named	Jameston	+		+		+		+		+	+	
782	March Burn	Gall Hill	+		+		+		+		+	+	
783	Linn Water	Meikle Hill	+		+		+		+		+	+	
784	Kello Water	Mahago Rig	+		+		+		+		+	+	
785	Ritchie's Cleuch	Aylmerbank Wood	+		+		+		+		+	+	
786	Un-named	Hitteril Hill	+		+		+		+		+	+	
787	Connell Burn	Moffat Dale	+	+	+	+			+		+	+	+
789	Teindside Burn	Teindside Lodge	+		+		+		+		+	+	
790	Wauchope Burn	Dykeheads	+		+		+		+		+	+	
791	Long Burn	Swinlee Hope	+		+		+		+		+	+	
793	Back Burn	Follions	+		+		+		+		+	+	
794	Un-named	Hampeth	+		+		+		+		+	+	
796	Un-named	Ballymenach	+		+		+		+		+	+	
800	Un-named	Knowe	+	+	+	+	+	+	+		+	+	+
804	Glenrusco Burn	Snout Hill	+		+		+		+		+	+	
808													
809	Un-named	Mounthooly	+		+		+		+		+	+	
810	Un-named	Harborough Plantation	+		+		+		+		+	+	
811	Un-named	Charlton Hall	+		+		+		+		+	+	
814	Un-named	Torrisdale	+		+		+		+		+	+	
816	Arran:Un-named	Clauchlands Farm	+		+		+		+		+	+	
817	Montfode Burn	Montfode	+		+		+		+		+	+	
819	Un-named	Mason'S Holm	+		+		+		+		+	+	
820	Dykes Burn	Burnside	+		+		+		+		+	+	
822	Un-named	Thankerton	+		+		+		+		+	+	
823	Hollows Burn	Broughton Place	+	+	+	+			+		+	+	
825	Caddon Water	Craiglatch	+		+		+		+		+	+	

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826	Un-named	Earlston	+		+		+		+		+	+	
827	Un-named	Newtonlees	+		+		+		+		+	+	
828	Un-named	English Strother	+		+		+		+		+	+	
832	Uisge na Criche	Druim nan Each	+		+		+		+		+	+	
835	Un-named	Rubha Creagan Dubha	+		+		+		+		+	+	
837	Glen Burn	Glentane Hill	+		+		+		+		+	+	
838	Un-named	South Balgray	+		+		+		+		+	+	
839	Earn Water	Logan Swell Farm	+		+		+		+		+	+	
840	Un-named	East Drumloch	+		+		+		+		+	+	
843	Un-named	Little King Seat	+	+	+	+	+	+	+		+	+	+
844	Un-named	Tweedaleburn	+		+		+		+		+	+	
845													
847	Foul Burn	Lees Hill	+		+		+		+		+	+	
849													
852	Allt nan Ruadhag	Dubh Bheinn	+		+		+		+		+	+	
853	Allt Druin a Mhuilinn	Crom Dhoire	+		+		+		+		+	+	
854	Gleann nan Laogh	Meall Reamhar	+		+		+		+		+	+	
861	North Calder Water	Caldercruix	+		+		+		+		+	+	
864	Burdiehouse Burn	Burdiehouse Mains	+		+		+		+		+	+	
867	Eye Water	Elly Cleugh	+		+		+		+		+	+	
868	Buskin Burn	Crosslaw	+		+		+		+		+	+	
873	Un-named	Ballimore	+		+		+		+		+	+	
874	Un-named	Creag an Tamhaisg	+		+		+		+		+	+	
877	Un-named	Ledleugh	+		+		+		+		+	+	
878	Bin Burn	Burnhouse	+		+		+		+		+	+	
883	Un-named	Gosford Sands	+		+		+		+		+	+	
886	Un-named	Upper Kilchattan	+		+		+		+		+	+	
887	Glengarrisdale River	Glengarrisdale	+		+		+		+		+	+	
889	Un-named	Knockalava	+	+	+	+	+	+	+		+	+	+
890	Un-named	Sidhean Sluaigh (West)	+		+		+		+		+	+	
893	Un-named	Gartmore House	+		+		+		+		+	+	
895	Un-named	Blairlogie	+	+	+	+	+	+	+		+	+	+
898	Un-named	Greenend	+		+		+		+		+	+	
903	Abhainn Mhor	Cnoc a' Chromh-Stri	+		+		+		+		+	+	
906	Un-named	The Dhu	+		+		+		+		+	+	
909	Un-named	Beannie	+		+		+		+		+	+	
910	Pairney Burn	Easter Coul	+		+		+		+		+	+	
912	Un-named	Drumley	+		+		+		+		+	+	
915	Allt na Creiche	Maolbuidhe	+		+		+		+		+	+	
920	Un-named	Pass of Brander	+		+		+		+		+	+	
921	Un-named	Succoth Lodge	+		+		+		+		+	+	
922	Inverhaggernie Burn	Inverhaggernie	+		+		+		+	+	+	+	
926	Un-named	Parks of Keillour	+		+		+		+		+	+	
928	Un-named	Balgay	+		+		+		+		+	+	
929	Un-named	Tayfield	+		+		+		+		+	+	

Square	Watercourse name	Site name	Main invertebrate sample	Replicate invertebrate sample	Main diatom sample	Replicate diatom sample	Main exuviae sample	Replicate exuviae sample	Main RHS survey	Audit RHS survey	MTR survey	Main water sample	Replicate water sample
930	Un-named	Baugh Cottage	+		+		+		+		+	+	
931	Un-named	Gometra House	+		+		+		+		+	+	
932	Allt Mor	Beinn na Drise	+		+		+		+		+	+	
933	Allt an Achaidh Fhada	Achadh Fada	+		+		+		+		+	+	
935	Un-named	Coelard	+		+		+		+		+	+	
937	Un-named	Arachan	+		+		+		+		+	+	
938	Allt Cailliche	Gleann Cailliche	+		+		+		+		+	+	
941	Un-named	A' Chrois (North)	+	+	+	+	+	+	+		+	+	+
944	Un-named	Teuchat Muir	+		+		+		+		+	+	
945	Un-named	Muiryfaulds	+	+	+	+	+	+	+		+	+	+
947													
949	Allt na Caillich	Port na Caillich	+		+		+		+		+	+	
950	Allt na Criche	Penalbanach	+		+		+		+		+	+	
951	Allt Ard-Charna	Tom na h-Airigh Duibhe	+		+		+		+		+	+	
952	Liddesdale Burn	Doire nan Gad	+		+		+		+		+	+	
953	Allt na Criche	Torran na Mountich	+		+		+		+		+	+	
955	Un-named	Devil's Staircase	+	+	+	+	+	+	+	+	+	+	+
956	Allt Coire Dubh-beag	Black Corries	+		+		+		+		+	+	
958	Innerhadden Burn	Dalchosnie	+		+		+		+		+	+	
960													
962	Un-named	Wester Coul	+		+		+		+		+	+	
966	Un-named	Port Eigin-Aig	+		+		+		+	+	+	+	
968	An Garbh-allt	Fireach Dubh	+	+	+	+	+	+	+		+	+	+
970	Un-named	Stronchreggan	+	+	+	+	+	+	+		+	+	+
972	Allt Feith Thuill	Meall Garbh	+		+		+		+		+	+	
974	Allt a Bathaich	Craig a' Bhathaich	+		+		+		+		+	+	
978	Burn of Farchal/Dead Water	Shank ff Driesh	+		+		+		+		+	+	
979	Burn of Duskintry	Little Hill of Adikinear	+		+		+		+		+	+	
980	Un-named	Cowiehill	+		+		+		+		+	+	
982	Un-named	Kinneff	+		+		+		+		+	+	
983	Loch Papadil/Papadil Burn	Papadil Lodge	+		+		+		+		+	+	
987	Allt Coire a'Bheithe	Druim Coire a'Bheithe	+		+				+		+	+	
990	Allt Sgudaig	Creag Tharsuinn	+		+		+		+		+	+	
991	Un-named	Druim na Beiste	+		+		+		+		+	+	
994	Allt Dhaidh Beag	Dukes Chair	+		+		+		+		+	+	
995	Un-named	Coire nam Freumh	+		+		+		+		+	+	
998	Water of Aven	Tomanarrach	+		+		+		+		+	+	
1000	Megray Burn	Megray	+		+		+		+		+	+	
1005	Abhainn Chosaidh	Gleann Cosaidh	+		+		+		+		+	+	
1012	Allt Creag an Leth-choin	Cairn Lochan	+		+				+		+	+	
1015	Red Burn	Allalogie	+		+		+		+		+	+	
1017													
1020	Un-named	Creag an Eilein	+		+		+		+		+	+	

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1025	Allt Mhic a Bhaird	Glenshiel Lodge	+		+		+		+		+	+	
1028	Un-named	Bhlaraidh	+		+		+		+		+	+	
1029	Un-named	Garthbeg	+		+		+		+		+	+	
1034	Allt an t-Sluichd Mhoir	Monadh an t-Stuichd Leith	+		+				+		+	+	
1035	Alltessan Burn	Chapel Hill											
1038													
1039	Un-named	Eventide Home	+		+		+		+		+	+	
1041	Un-named	Beinn a Tuath	+	+	+	+	+	+	+		+	+	+
1043	Allt Dubh	Caiplach	+		+		+		+		+	+	
1044	Un-named	Rubh a' Chinn Mhoir	+		+		+		+			+	
1046	Allt na Feithe Buidhe	Creag Capach	+		+		+		+		+	+	
1047	Un-named	Coire nan Each	+		+		+		+		+	+	
1048	Allt Coire Eoghainn	Cnoc Eoghainn	+		+		+		+		+	+	
1052													
1054	Un-named	Culfoichbeg	+		+		+		+		+	+	
1056	Ealaiche Burn	White Geese	+	+	+	+	+	+	+		+	+	+
1057	The Shevock/Malsach Burn	Moss of Warehouse	+		+		+		+		+	+	
1058	Red Burn	Folla Rule	+		+		+		+		+	+	
1060	Un-named	Milltown of Leask	+		+		+		+		+	+	
1063	Allt a Garaidh	Beinn nan Corrafidheag	+		+		+		+		+	+	
1064	Un-named	Mullach Ben Sca	+		+		+		+		+	+	
1067	Applecross/Allt Coire Attadale	Applecross Forest	+		+		+		+		+	+	
1070	Chorainn	Bac an Eich	+		+		+		+		+	+	
1072	Un-named	Tomich House	+		+		+		+		+	+	
1075	Un-named	Coulmony	+		+		+		+		+	+	
1077	Un-named	Haughs	+		+		+		+		+	+	
1080	Burn of Gask	Gask	+		+		+		+		+	+	
1082	Un-named	Braehead	+		+		+		+		+	+	
1084	Un-named	Knockintorran	+		+		+		+		+	+	
1087	Abhainn Gremiscaig	Cul a Chaisteil Dhuibh	+		+		+		+		+	+	
1090	Un-named	Heights of Kinlochewe	+		+		+		+		+	+	
1092	Un-named	Torriegorie	+		+		+		+		+	+	
1093	Sgitheach	Bog a' Bhreacaich	+		+		+		+		+	+	
1098	Longhill Burn	Longhill	+		+		+		+		+	+	
1099	Un-named	Walkerdales	+		+		+		+		+	+	
1102	Un-named	Pithacalder	+		+		+		+		+	+	
1104	Un-named	Caisteal Odair	+		+		+		+		+	+	
1113	Balnagown/Strathroy	Strathroy	+		+		+		+		+	+	
1115	Un-named	Braigh Buidhe	+		+		+		+		+	+	
1118	Un-named	Second Coast	+		+		+		+		+	+	
1121	Un-named	Meallan Odhar nan Glasa	+		+		+		+		+	+	
1122	Un-named	Gruinards Lodge	+		+		+		+		+	+	
1125	Un-named	Sidhean Mor	+		+		+		+		+	+	
1130	Un-named	Cnoc Liath	+		+		+		+		+	+	

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1131	Un-named	Coire Dubh(South)	+		+		+		+		+	+	
1137	Un-named	Loch Cul Laimhe Bige	+	+	+	+	+	+	+		+	+	+
1138	Un-named	Laxay	+		+		+		+		+	+	
1142	Coire na Smugaidean	Near Lochan nan Smugaidean											
1146	Torrish Burn	Skelabosdale	+		+		+		+		+	+	
1148	Un-named	Aird Uig	+		+		+		+		+	+	
1149													
1150	Allt Airigh Sgridhe	Stacashal	+		+		+		+		+	+	
1152													
1155	Alltan Fearna	Cnoc Bad na Coille	+		+		+		+		+	+	
1157	Allt Airigh-dhamh	Meall a Bhuirich	+		+		+		+		+	+	
1159	Allt Bad an t-Serraich	Cnoc an t-Searraich											
1162	Feadan Ghlinn Mhoir	Blar nam Faoileag	+		+		+		+		+	+	
1163	Un-named	Cnoc an Daimh	+		+		+		+		+	+	
1166	Un-named	Garbh-Chnoc nan Ealachan	+		+		+		+		+	+	
1167	The Uair	Cathair Dubh bo Graideach	+		+		+		+		+	+	
1172	Un-named	Cunnal	+		+		+		+		+	+	
1174													
1175	Allt Clais Eirigill	Cleit an t-Seabhaig	+		+		+		+		+	+	
1181	Un-named	Salt Skerry	+		+		+		+		+	+	
1184									+				
1186													
1187	Un-named	Hatson	+		+		+		+		+	+	
1188	West Burn of Denwick	Scarva Taing	+		+		+		+		+	+	
1190	Burn of Trumland	Trumland House	+	+	+	+	+	+	+		+	+	+
1193	Un-named	Carrick House	+	+	+	+			+		+	+	+
1197													
1200	Laxo Burn	South Filla Runnie	+		+		+		+		+	+	
1202	Gilli Burn	Palmire	+		+		+		+		+	+	
1205	Reiss Burn	The Lee	+		+		+		+		+	+	
1206	Un-named	Burri Hill	+		+		+		+		+	+	
1208	Burn of Southerhouse	Ness of Collaster	+		+		+		+		+	+	
1209													
1212	Borrow Beck	Low Borrowdale	+		+		+		+		+	+	
1213													
1214	Caveside Gill	Washfold	+		+		+		+		+	+	
1215													
1216	Aske Beck	St. Osythe	+		+		+		+		+	+	
1219	Un-named	Middle Head	+		+		+		+		+	+	
1220	Butter Beck	Grange Head											
1221	Mill Beck	Brook Hall Farm	+		+		+		+		+	+	
1240	Un-named	Ysgubor-y-Coed	+		+		+		+		+	+	
1241	Cei.3og	Cadwst	+		+		+		+		+	+	
1242	Un-named	Scandale Fell	+		+		+		+		+	+	
1243													
1244	Un-named	Tyn-y-Pwll	+		+		+		+		+	+	

