

Assessment of the condition of the white-clawed crayfish Austropotamobius pallipes in the River Wye Special Area of Conservation in 2014-2015

David Rogers & Elizabeth Watson

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1. Crynodeb Gweithredol

Yn 2014 a 2015, arolygwyd rhannau o ACA Afon Gwy ar Afon Edw, Nant yr Offeiriad, Nant Sgithwen a Nant Dulas [Llanfair-ym-muallt] i chwilio am y cimwch afon crafanc wen er mwyn asesu cyflwr poblogaethau'r cimwch a'i gynefin. Dilynodd y gwaith samplu y fethodoleg a ddatblygwyd yn ystod rhaglen fonitro 2003 (Rogers & Watson 2004), ac roedd yn cynnwys cyfuniad o chwilio â llaw a thrapio. Cynhaliwyd y gwaith er mwyn darparu'r rhan fwyaf o'r data sy'n ofynnol i asesu a oedd cimychiaid afon crafanc wen ACA Afon Gwy mewn cyflwr ffafriol.

Er y bydd angen casglu mwy o ddata cyn y gellir cynnal asesiad llawn, mae prinder ymddangosiadol y cimwch yn Afon Edw, yn dilyn marwolaethau yn 2006, yn peri pryder o gofio bod y ddyfrffordd hon wedi bod yn bwysig iawn ar gyfer y rhywogaeth hon yn y gorffennol diweddar. Er bod niferoedd y cimychiaid yn gymharol gadarn yn Nant yr Offeiriad a Nant Sgithwen, mae'r poblogaethau bellach wedi'u cyfyngu i'r blaenddyfroedd. Hefyd ymddengys nad oedd unrhyw gimychiaid afon ar ôl yn Nant Dulas [Llanfair-ym-muallt] yn 2015, er bod poblogaeth dda o gimychiaid afon crafanc wen i'w chael ymhellach i lawr yr afon.

Mae'r adroddiad presennol yn cyfuno canlyniadau arolygon 2014 a 2015 ar gimychiaid afon crafanc wen, ac mae'n disodli adroddiad arolwg 2014 (Rogers & Watson, 2015).

2. Executive Summary

In 2014 and 2015, parts of the River Wye SAC on the Afon Edw, Nant yr Offeiriad, Sgithwen Brook and Dulas Brook [Builth Road] were surveyed for white-clawed crayfish to assess the condition of both the crayfish populations and crayfish habitat. Sampling followed the methodology developed during the 2003 monitoring programme (Rogers & Watson 2004), and included a combination of manual searching and trapping. The work was undertaken to provide most of the data required to assess whether the white-clawed crayfish in the River Wye SAC was in favourable condition.

Whilst further data will need to be collected before the full assessment can be made, the apparent lack of white-clawed crayfish in the Afon Edw, following a mortality in 2006, is worrying given that this has been a very important waterway for this species in the recent past. Whilst crayfish numbers were relatively robust in Nant yr Offeiriad and Sgithwen Brook, populations have now become confined to the headwaters. Also there appeared to be no crayfish at all left in Dulas Brook [Builth Road] in 2015 whereas in 2004 there was a good population of white-clawed crayfish in downstream reaches.

The present report provides an amalgamation of the 2014 and 2015 crayfish survey results, and supersedes the 2014 survey report (Rogers & Watson, 2015).

3. Introduction

3.1. Background information

The white-clawed crayfish *Austropotamobius pallipes* is a feature of the River Wye Special Area of Conservation (SAC). The SAC designation aims to ensure that populations within selected sites are in Favourable Condition and that Favourable Conservation Status (FCS) is maintained across its range. Favourable Condition is defined by a Conservation Objective that is assessed by monitoring appropriate attributes against agreed thresholds. To this end, a standardised monitoring protocol for the white-clawed crayfish was developed as part of the 'LIFE in UK Rivers' project (Peay, 2002).

Surveys for crayfish within the mid-Wye catchment in 1995 and 2002 helped to determine its status and distribution, and identified the most important tributaries on the River Wye (Rogers & Holdich, 1995; Rogers & Watson, 2003). These are the Afon Duhonw, Afon Edw, Afon Irfon, Afon Llynfi, Clyro Brook, Dulas Brook (Builth Road), Nant yr Offeiriad and Sgithwen Brook. The surveys also enabled the setting of provisional thresholds for condition assessment within these key tributaries. Using a modified version of the standardised UK monitoring protocol, a condition assessment of the population in the Wye SAC was undertaken in 2003 (Rogers & Watson, 2004). During the course of the monitoring programme, the protocol was further modified to include trapping as well as manual searching to improve the volume of data.

Using five attributes to determine favourable condition (see Table 1), the 2003 assessment concluded that the white-clawed crayfish population was in unfavourable condition, although it was noted that the only failing threshold was the average number of crayfish recorded in each habitat patch. Although the authors suggested that the "lower limit of [greater than one] is set too high and should be revised" (Rogers & Watson, 2004), the Countryside Council for Wales and Natural Resources Wales has continued to use this threshold in assessing favourable condition. At that time, white-clawed crayfish were found in 6 of the 8 monitoring units, being absent from the Afon Duhonw and the Afon Irfon. Whilst porcelain disease was recorded at low incidence, no signal crayfish were detected in any of the monitoring units. Suitable habitat was recorded in 79% of the sampled habitat patches and all monitoring units had a GQA Biological Class of A or B.

Since 2003, signal crayfish appear to have spread within the Bachawy, a tributary of the mid-Wye, despite attempts to control numbers, and may now be in the main Wye river channel (Chris Dyson, pers. comm.). The dispersal of signals within the mid-Wye catchment will have a serious impact upon white-clawed crayfish, by both direct competition and the spread of crayfish plague. Over the last three years, a captive-rearing programme has released 3000 juvenile white-clawed crayfish into the Afon Chwefru (a tributary of the Afon Irfon). This needs to be taken into account when assessing the condition of the Irfon monitoring unit.

3.2. Objectives

The objective of the 2014-2015 survey work was to undertake monitoring of the white-clawed crayfish and its habitat within the River Wye SAC in order to report on condition as part of the assessment of Favourable Conservation Status for Natura

2000 features. The scope of the project was limited by financial constraints and weather conditions, given that the work was commissioned late in the year.

Table 1: Conservation Objective for the white-clawed crayfish in the River Wye SAC in 2003.

Attribute No.	Conservation	To maintain the white-clawed crayfish Austropotamobius pallipes in the River Wye SAC in favourable condition where:	
1		the average number of crayfish recorded in each habitat patch is:	
	Lower limit	greater than 1	
		where:	
2	Lower limit	crayfish are present in 5 of the 8 monitoring units	
		and where:	
3	Lower limit	there is an absence of alien crayfish and plague, and a <10% incidence of porcelain disease	
	Habitat quality		
4	Lower limit	Suitable habitat should be present in 60% of the sampled habitat patches	
		and where:	
5	Lower limit	water quality is at GQA Biological Class A or B in 5 of the 8 monitoring units	
Definition of suit crayfish habitat	able white-clawed	River beds with cobble and boulders larger than 15cm along the longest axis, and with little or no siltation.	

4. Methods

Monitoring of current condition followed the Common Standards approach adopted during the 2003 assessment, including the use of traps as well as manual searches.

The Nant yr Offeiriad, Edw, Sgithwen Brook, Dulas Brook (Builth Road) [and Llynfi] were considered to be the most important **monitoring units** because most crayfish were found within these tributaries in 2003, and therefore monitoring efforts focussed here in 2014-2015.

A total of 16 x 500m **stretches** were selected randomly within each monitoring unit (see Appendix A to D). Starting from the downstream end of the stretch, a 100m sampling site was selected within each stretch which contained five suitable **habitat patches** measuring from 1 to $20m^2$. Within each habitat patch, 10 potential **refuges** (large cobble or boulder >15cm along longest axis) were searched and the number of crayfish recorded. Given the low population levels currently found on the River Wye, the examination of relatively small numbers of refuges sometimes failed to find any crayfish, and timed searches of 15 minutes within each habitat patch were more appropriate as well as the use of traps.

A crayfish habitat recording form was completed for each site. The form consists of the following:

- Basic survey details, including conditions at the time of the survey.
- Habitat details in each habitat patch.
- An overall appraisal of habitat for crayfish and ease of survey in the site.
- Crayfish record, the details of the catch.

A photograph was taken at each site and incorporated into the habitat recording form and where crayfish were found, details were recorded on a crayfish species survey form. Following examination, crayfish were returned to the water in the position from whence they came.

Special attention was paid to Health and Safety procedures for fieldwork in the water and to the use of appropriate precautions to prevent the spread of crayfish plague.

4.1. Methods of Analysis

4.1.1. Crayfish catch

The crayfish catch was analysed as follows:

- Geographical distribution of crayfish within the monitoring unit showing sites and abundance on a scale of distance upstream from the confluence of the River Wye.
- Crayfish abundance per site as number of crayfish caught at each sampling site, relative abundance at each site and average abundance per monitoring unit. Classification was graded using the 5-point scale shown in Table 2.

Table 2: Average counts of crayfish and classification of population abundance (after Peay, 2002).

Average number of crayfish per site	Population abundance
>5	Very high
>=3, <=5	High
>=1, <3	Moderate
>0, <1	Low
0	Absent/undetected

- Size distribution of population.
- % of population as juveniles less than 25mm carapace (CL)
- ◆ Health of population, % of population with thelohaniasis (porcelain disease).
- % of adult females showing signs of breeding.

4.1.2. Habitat

Each sampling site was evaluated for crayfish habitat according to abundance of habitat as shown below.

• Evaluation of crayfish habitat for whole site (scored separately for margins, mid-channel and banks):

0	Not evident or only minimal potential for refuges
1	Present but localised or sparse, in less than a third of site
2	Frequent, covering more than a third of site, or frequent, but small patches
3	Abundant. Potential refuge habitat continuous, or semi-continuous, along more than two-
	thirds sample site

An evaluation of crayfish habitat score was calculated for each tributary surveyed and also for the River Wye SAC to assess the presence of suitable crayfish habitat.

4.1.3. Water quality

Water quality data was not collected during this survey.

5. Results

The following sections of monitoring units (or tributaries) were surveyed - National Grid Reference down and upstream limits are shown in brackets.

Afon Edw (SO077470 - SO137579) 2014 and 2015

Nant yr Offeiriad (SO096431 - SO012439) 2014

Sgithwen Brook (SO113415 – SO045391) 2014 and 2015

Dulas Brook (Buith Road) (SO020530 - SO063572) 2015

5.1. Afon Edw

The Afon Edw is approximately 18 km in length and was divided into thirty-six 500m stretches. Sixteen of these were selected randomly and were to be sampled using the standard method and trapping.

5.1.1. Abundance

No crayfish were caught during survey work in 2014 and 2015.

Table 3: Classification of population abundance – Afon Edw.

		COMBINED: STANDARD AND TRAPPING		
Site	Distance from confluence (km)	No of crayfish per site	Average abundance per patch	Classification of population abundance
1	0	0	0	Absent/undetected
2	1	0	0	Absent/undetected
3	2	0	0	Absent/undetected
4	2.5	0	0	Absent/undetected
5	3	0	0	Absent/undetected
6	4	0	0	Absent/undetected

7	4.5	0	0	Absent/undetected
8	6	0	0	Absent/undetected
9	6.5	0	0	Absent/undetected
10	8	0	0	Absent/undetected
11	10	0	0	Absent/undetected
12	10.5	0	0	Absent/undetected
13	11	0	0	Absent/undetected
14	14	0	0	Absent/undetected
15	16.5	0	0	Absent/undetected
16	17	0	0	Absent/undetected
Total		0		
		Classification for monitoring unit		ABSENT/UNDETECTED

5.1.2. Habitat

Table 4: Summary of evaluation of crayfish habitats - Afon Edw. See Section 4.1.2

for explanation of values.

Site	In margin	In mid channel	In banks	
Edw				
1	3	3	3	
2	3	3	3	
3	3	3	3	
4	3	3	3	
5	3	3	3	
6	3	3	3	
7	3	3	3	
8	3	3	3	
9	3	3	3	
10	3	3	3	
11	2	2	2	
12	2	2	2	
13	2	2	2	
14	3	3	3	
15	3	3	3	
16	3	3	3	
Total (Sites 11 – 16)	45	45	45	
		Total for Afon Ed	dw monitoring unit	94%

5.2. Nant vr Offeiriad

Nant yr Offeiriad is approximately 9.5 km in length and was divided into nineteen 500m stretches. Sixteen of these were randomly selected and sampled using the standard method and trapping.

5.2.1. Abundance

There was a marked absence downstream but a total of 122 crayfish were caught in the six most upstream sections of Nant yr Offeiriad. Raw data can be found in Appendix 1.

Table 5: Classification of population abundance – Nant yr Offeiriad.

		COMBINED STANDARD AND TRAPPING		
Site	Distance from confluence (km)	No of crayfish per site	Average abundance per patch	Classification of population abundance
1	0	0	0	Absent/undetected
2	0.5	0	0	Absent/undetected
3	1	0	0	Absent/undetected
4	1.5	0	0	Absent/undetected
5	2	0	0	Absent/undetected
6	2.5	0	0	Absent/undetected
7	3	0	0	Absent/undetected
8	3.5	0	0	Absent/undetected
9	4	0	0	Absent/undetected
10	4.5	0	0	Absent/undetected
11	5.5	8	1.6	Moderate
12	6.5	32	6.4	Very high
13	7	48	9.6	Very high
14	7.5	14	2.8	Moderate
15	8	12	2.4	Moderate
16	8.5	8	1.6	Moderate
Total		122		
		Classification for monitor	ing unit	MODERATE

5.2.2. Analysis of catch in Nant yr Offeiriad

A total of 122 crayfish (45 females and 77 males) were caught on Nant yr Offeiriad. Carapace lengths ranged between 17 and 47 mm. Figure 1 illustrates carapace length frequency.

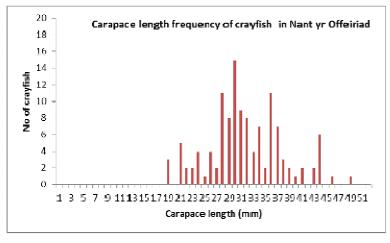


Figure 1: Summary of carapace length frequency of crayfish caught on Nant yr Offeiriad.

Table 6 shows analysis of other information gathered on examination of crayfish caught. Individual crayfish details can be found in Appendix 1.

Table 6: Other information regarding crayfish population on Nant yr Offeiriad.

	Percentage of crayfish affected
Thelohania	8 (6%)
Damage	18 (15%)
Indication of females breeding (with glair)	39 (87%)

5.2.3. Habitat

Table 7. Summary of evaluation of crayfish habitats - Nant yr Offeiriad. See Section 4.1.2 for explanation of values.

Site	In margin	In mid channel	In banks	
Nant yr Offeiriad				
1	3	3	3	
2	3	2	1	
3	2	2	1	
4	3	3	0	
5	3	3	1	
6	2	3	2	
7	3	3	1	
8	3	3	2	
9	2	3	2	
10	3	3	3	
11	3	3	3	
12	3	3	2	
13	3	3	3	
14	2	3	3	
15	2	2	2	
16	2	2	2	
Total	42	44	31	
	81%			

5.3. Sgithwen Brook

Sgithwen Brook is approximately 8 km in length and was divided into sixteen 500m stretches. Sites 9 – 16 were surveyed in 2014 survey and Sites 1 – 8 in 2015.

5.3.1. Abundance

Crayfish were found in most of the upstream sites as in the 2003 survey, with Site 14 having the highest abundance. No crayfish were found in the most downstream sites (Sites 1-5) or at the most upstream site (Site 16) where the land use changes in character to conifer forest, despite the dense population immediately downstream.

A total of 120 crayfish were caught on Sgithwen Brook. Raw data can be found in Appendix 1.

Table 8: Classification of population abundance in Sgithwen Brook.

		СОМВІ	NED STANDARD AND	TRAPPING
Site	Distance from confluence (km)	No of crayfish per site	Average abundance per patch	Classification of population abundance
1	0	0	0	Absent/undetected
2	0.5	0	0	Absent/undetected
3	1	0	0	Absent/undetected
4	1.5	0	0	Absent/undetected
5	2	0	0	Absent/undetected
6	2.5	2	0.4	Low
7	3	13	2.6	Moderate
8	3.5	7	1.4	Moderate
9	4	7	1.4	Moderate
10	4.5	4	0.8	Low
11	5	8	1.6	Moderate
12	5.5	2	0.4	Low
13	6	4	0.8	Low
14	6.5	54	10.8	Very high
15	7	19	3.8	High
16	7.5	0	0	Absent/undetected
Total		120		
		Classific	ation	MODERATE

5.3.2. Analysis of catch in Sgithwen Brook

A total of 120 crayfish (55 females and 65 males) were caught on Sgithwen Brook. Carapace lengths ranged between 16 and 42 mm. Figure 2 illustrates carapace length frequency.

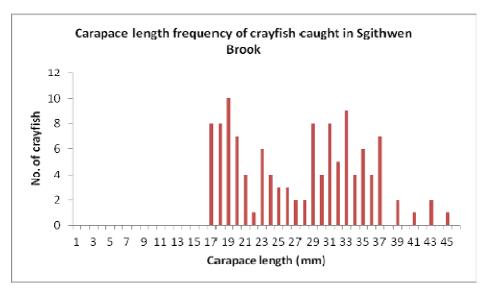


Figure 2: Summary of carapace length frequency of crayfish caught on Sgithwen Brook.

Table 9 shows analysis of other information gathered on examination of crayfish caught. Individual crayfish details can be found in Appendix 1.

Table 9: Other information regarding crayfish population on Sgithwen Brook.

	Percentage of crayfish affected
Thelohania	6 (5%)
Damage	14(12%)
Indication of females breeding (with glair)	29 (69%)

5.3.3. Habitat

Table 10: Summary of evaluation of crayfish habitats - Sgithwen Brook. See Section 4.1.2 for explanation of values.

3 3 3	3 3	3	
3 3			
3	3	_	
		3	
	3	3	
3	3	3	
3	3	3	
3	3	3	
3	3	3	
3	3	3	
3	3	1	
3	3	3	
	3	2	
	3	1	
	3	2	
3	3	3	
3	3	2	
3	3	1	
48	48	39	
	3 3 3 3 3 3 3 3 3 3 3	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 1

5.4. Dulas Brook (Builth Road)

The Dulas Brook (Builth Road) is approximately 6.5 km in length and was divided into thirteen 500m stretches. The two most upstream sites (Sites 12 and 13) were dry and therefore unsuitable for survey.

5.4.1. Abundance

No crayfish were found in any sites during the survey.

Table 11: Classification of population abundance – Dulas Brook (Builth Road).

		COMBIN	COMBINED: STANDARD AND TRAPPING				
Site	Distance from confluence (km)	No of crayfish per site	Average abundance per patch	Classification of population abundance			
1	0	0	0	Absent/undetected			
2	0.5	0	0	Absent/undetected			
3	1	0	0	Absent/undetected			

		Classification for monit	ABSENT/UNDETECTED	
Total		0		
13	6	0	0	Absent/undetected
12	5.5	0	0	Absent/undetected
11	5	0	0	Absent/undetected
10	4.5	0	0	Absent/undetected
9	4	0	0	Absent/undetected
8	3.5	0	0	Absent/undetected
7	3	0	0	Absent/undetected
6	2.5	0	0	Absent/undetected
5	2	0	0	Absent/undetected
4	1.5	0	0	Absent/undetected

5.4.2. Habitat

Table 12: Summary of evaluation of crayfish habitats – Dulas Brook (Builth Road).

See Section 4.1.2 for explanation of values.

Site	In margin	In mid channel	In banks	
Dulas Brook (Builth Road)				
1	3	3	3	
2	3	3	3	
3	3	3	3	
4	3	3	3	
5	3	3	3	
6	3	3	3	
7	3	3	3	
8	3	3	3	
9	2	2	1	
10	2	2	2	
11	1	1	0	
12	0	0	0	
13	0	0	0	
Total	29	29	27	
•	Total for Du	las Brook (Builth Ro	ad) monitoring unit	73%

6. Discussion – Analysis of Attributes

The project objective was to report on condition as part of the assessment of Favourable Conservation Status for Natura 2000 features using the provisional conservation objectives as supplied with the project specification (Table 1, Section 2) which lists the lower limits for these. The following sections address each of the attributes and determine whether the lower limit has been attained in this survey. It should be noted, however, that survey work in 2014-15 only considered four of the eight monitoring units and any assessment is incomplete until the other four units are surveyed.

Attribute 1: Average number of crayfish

The average crayfish per patch was greater than one (the limit, see Table 1), i.e. above the threshold, in the Offeiriad and Sgithwen but not the Edw or Dulas Brook (Builth Road) (Table 13).

Table 13: Average crayfish per patch in each monitoring unit.

Monitoring unit	Total crayfish	Number of	Average crayfish
	caught	patches	per patch
Nant yr Offeiriad	122	80	1.5
Afon Edw	0	80	0
Sgithwen Brook	120	80	1.5
Dulas Brook (Builth Road)	0	65	0
. (cdd)			

Attribute 2: Crayfish distribution

Crayfish were found in two of the four monitoring units surveyed (Tables 13 & 14) and further survey work will need to be undertaken to establish whether four monitoring units (the limit, see Table1) support crayfish and this Attribute is met.

Table 14: Distribution and density of crayfish in monitoring units.

Monitoring unit	Classification
Nant yr Offeiriad	Moderate
Afon Edw	Absent/undetected
Sgithwen Brook	Moderate
Dulas Brook (Builth Road)	Absent/undetected

Attribute 3: Alien crayfish/plague and porcelain disease

No non-native crayfish were found in the survey, there was no evidence of plague and less than 10% incidence of porcelain disease (the limit, see Table 1), thus this Attribute has been met in the areas surveyed but it is important to verify that there are no alien crayfish present in at risk areas (tributaries of Nant yr Offeiriad and Sgithwen Brook) before this attribute can be verified for the SAC.

Table 15: Incidence of the lohania in crayfish from each monitoring unit.

Monitoring unit	Incidence of Thelohania
Nant yr Offeiriad	6%
Afon Edw	Not applicable
Sgithwen Brook	4%
Dulas Brook (Builth Road)	Not applicable

Attribute 4: Habitat Quality, extent of suitable habitat

All of the areas surveyed had suitable habitat present in more than 60% of the sampled patches, which is sufficient for this Attribute to be met.

Table 16: Percentage of suitable habitat

Monitoring unit	In margins	In mid-channel	In banks	Overall evaluation
Nant yr Offeiriad	88%	92%	65%	81%
Afon Edw	94%	94%	94%	94%
Sgithwen Brook	100%	100%	81%	88%
Dulas Brook (Builth Road)	74%	74%	69%	73%
Suitable	84%			

7. Conclusions

Despite an abundance of excellent habitat throughout all the tributaries of the River Wye SAC, the feature was found to be in Unfavourable condition 2003 and is somewhat worse now because previously important populations of white-clawed crayfish (in 2003) in Afon Edw and Dulas Brook (Builth Road) cannot now be found. Signal crayfish are spreading in the Wye catchment, thus there is bleak prospect for the white-clawed crayfish and although a causal link for the decline of the natives has not been made with the expansion of signal crayfish in this survey, the causal link is strongly suspected.

Although conclusions cannot be drawn about the River Wye SAC as a whole until more survey work is done, one can comment on the four monitoring units surveyed.

Nant yr Offeiriad was surveyed fully and yielded 1.5 crayfish per patch with low incidence of Thelohania (6%) and ample suitable habitat. It met all the Attribute needs of the SAC, although it should be noted that whilst the crayfish population is dense in places it is only found in the upper reaches of this river. For this reason investigation of the tributaries particularly in the lower reaches for the presence of signal crayfish is recommended for the completion of the assessment.

Afon Edw yielded no crayfish although there was ample suitable habitat quality. The absence of crayfish was thought to be due to a crayfish mortality in 2006 which was highlighted to the current surveyors by local residents. This mortality was investigated by the Environment Agency at the time but no cause of death was identified. The following account was supplied by Catrin Grimstead of Natural Resources Wales:

"In 1977 native crayfish were found at two downstream sites on the River Edw (Lilley *et al.*, 1979). Subsequently, in 1988, it was shown to hold a large population of native crayfish within the midstream section both upstream and downstream of Hundred House and at a downstream site upstream of Aberedw (Foster, 1996). Subsequent surveys found many crayfish at downstream (Holdich, 1993) sites and at several sites along the stretch of river from Hundred House to Aberedw (Rogers & Holdich, 1995). Although the number of individuals found showed considerable decline, subsequent reports from the following ten years confirmed their presence along this stretch (Slater & House, 2001; Rogers & Watson, 2003b; Slater & Howells, 2003a; Howells, 2005) and further upstream from Frank's Bridge (Rogers & Watson, 2003b). The decline in numbers were suspected to be the result of a sheep dip pollution event (Slater & House, 2001), as the Environment Agency reported a pollution incident of unknown cause in 1997 (Environment Agency, 1997), and / or the result of increased siltation following deforestation in the area (Slater, 2002; Slater & Howells, 2003a).

"A subsequent Environment Agency Wales investigation in 2006 reported many dead native crayfish along the river upstream of Frank's Bridge but no cause of death was identified (Environment Agency, 2006). The most recent survey of eight of the sites which contained crayfish in 2003 (Rogers & Watson, 2003b) found no crayfish remaining (Slater *et al.*, 2008b). It is unknown if there has been a further pollution event in the river. Both the 2006 and the 2008 surveys found freshwater invertebrates, including gammarus and insect larvae, and fish within the river. A previous report on a pyrethroid pollution incident on the Sgithwen Brook showed that freshwater invertebrates, salmon and trout fry rapidly returned to the area in the years following the event, but that crayfish did not (Wilkins, 1998). It is therefore possible that an unreported incident occurred on the River Edw between 2004 and 2006, after which the freshwater fauna returned to the area with the exception of the native crayfish."

The absence of crayfish in 2006 when other riverine invertebrates and fish were found is more suggestive of crayfish plague than a pollution incident, with the disease going undetected. Further investigation of the tributaries of the Edw, particularly those adjacent to the Bachawy which supports signal crayfish, would be worthwhile to ascertain whether there were any signal crayfish in the catchment and maybe shed light on the reason for the disappearance.

On **Sgithwen Brook** the average catch was 1.5 crayfish per patch, with low incidence of Thelohania (5%) and ample suitable habitat. It met all the Attribute needs of the SAC, although it should be noted that whilst the crayfish population is dense in places it is only found in the upper reaches of this river. For this reason investigation of the tributaries particularly in the lower reaches for the presence of signal crayfish is recommended for the completion of the assessment.

Dulas Brook (Builth Road) yielded no crayfish in 2014/15 but had shown good populations in the lower reaches in 2003. Although the habitat is not quite as good as the Afon Edw, Sgithwen Brook and Nant yr Offeiriad it is more than adequate to support white-clawed crayfish.

It is important to complete survey work for white-clawed crayfish on the River Wye SAC in 2016 so that the 2014-15 results can be amalgamated into an overall assessment.

8. Recommendations

- It is important to complete survey work for white-clawed crayfish on the River Wye SAC in 2016 so that the 2014-2015 results can be amalgamated into an overall assessment. For completeness the remaining four monitoring units (Afon Duhonw, Afon Irfon, Afon Llynfi, Clyro Brook) would need to be surveyed.
- Survey tributaries of the monitoring units to assess native populations and
 possible distribution of signals. It would be valuable to verify the absence of
 signal crayfish (*Pacifastacus leniusculus*) by targeted survey of tributaries of
 Afon Edw, Sgithwen Brook, Nant yr Offeiriad (any other reports of signal
 crayfish would need to be investigated).

• Survey Afon Chwefru (a tributary of Afon Irfon) for reintroduction verification.

9. References

Peay, S. 2002. A standardised survey and monitoring protocol for the white-clawed crayfish Austropotamobius pallipes in the UK. Life in UK Rivers.

Rogers, D. & Holdich, D.M. 1995. Survey of white-clawed crayfish distribution in the tributaries of the rivers Usk and Wye. CCW Contract Science. **137**. Countryside Council for Wales.

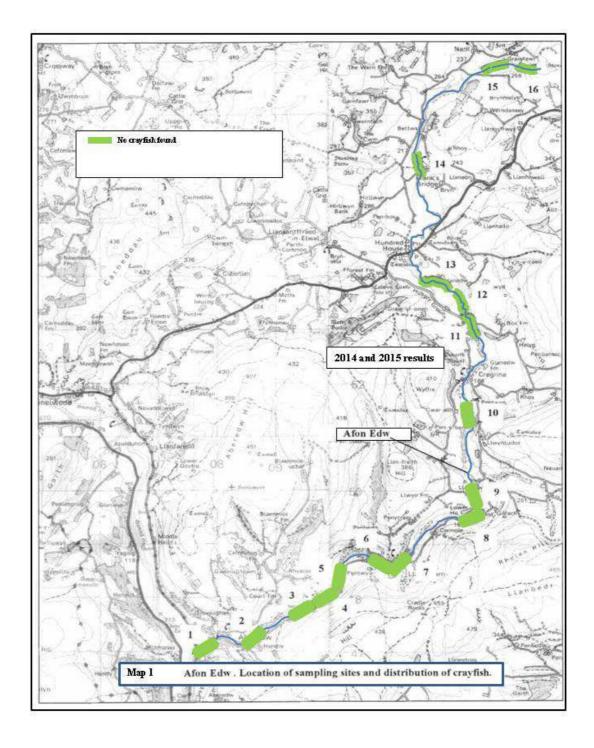
Rogers, D. & Watson, E. 2003. *The status of the white-clawed crayfish* Austropotamobius pallipes *in the mid-Wye catchment, 2002.* CCW Contract Science. **543**. Countryside Council for Wales.

Rogers, D. & Watson, E. 2004. Assessment of condition of white-clawed crayfish Austropotamobius pallipes in the River Wye candidate Special Area of Conservation. CCW Environmental Monitoring Report No 2. FC-73-05-33. Countryside Council for Wales.

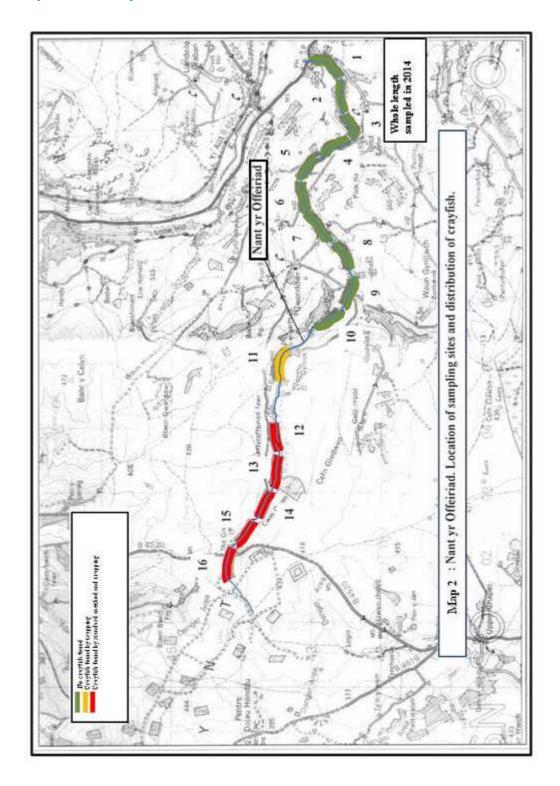
Rogers D & Watson E 2015. Assessment of the condition of the white-clawed crayfish *Austropotamobius pallipes* in the River Wye Special Area of Conservation in 2014. NRW Evidence Report No: **74**, 85pp. Natural Resources Wales, Bangor.

10. Appendices

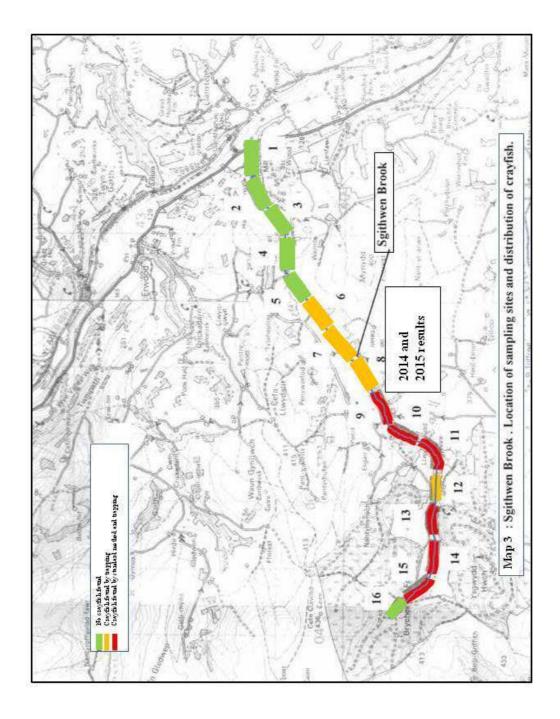
10.1. Appendix A: Location of sampling stations and distribution of white-clawed crayfish in the Afon Edw in October 2014 and August/September 2015.



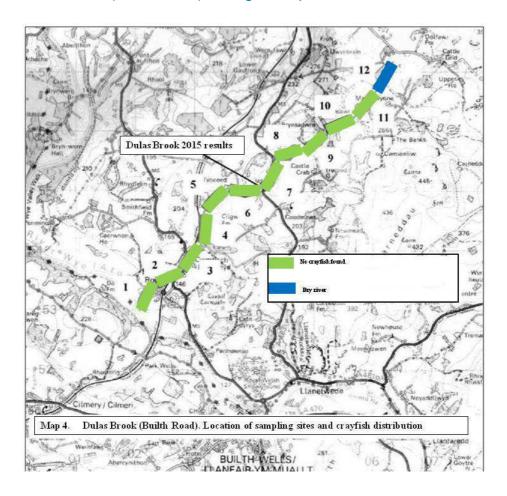
10.2. Appendix B: Location of sampling stations and distribution of white-clawed crayfish in Nant yr Offeiriad, October 2014.



10.3. Appendix c: Location of sampling stations and distribution of white-clawed crayfish in Sgithwen Brook in October 2014 and September 2015.



10.4. Appendix D: Location of sampling stations and distribution of white-clawed crayfish in Dulas Brook (Builth Road) in August/September 2015.



10.5. Appendix E: Details of individual white-clawed crayfish records in Nant yr Offeiriad in October 2014.

Site 11

CRAYFISH RECORDING FORM

Catchment	Wye		River			Site reference	11	11	
Date	10/10/2014		Surveyors				Sheet no.	1	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	М	32						4
2	A.p	М	36						4
3	A.p	М	35						4
4	A.p	F	34			G			4
5	A.p	М	39						4
6	A.p	F	28		PD				4
7	A.p	М	32						4
8	A.p	М	27	AL OI					4

Site 12

Catchment	Wye		River	Offeiriad			Site reference	12	
Date	10/10/2014		Surveyors	DR LW			Sheet no.	2	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	M	22	ML				P1	1
2	A.p	F	27			G		P2	1
3	A.p	F	32			G		P2	1
4	A.p	M	26	MR	PD			P2	1
5	A.p	F	20		PD			P3	1
6	A.p	М	19					P3	1
7	A.p	M	42					P3	1
8	A.p	M	35	MR				P3	1
9	A.p	F	32			G		P4	1
10	A.p	F	17					P4	1
11	A.p	M	27						4
12	A.p	F	28			G			4
13	A.p	M	36						4
14	A.p	F	26	ML	PD				4
15	A.p	M	30	MR					4
16	A.p	M	34						4
17	A.p	F	28			G			4
18	A.p	M	28						4
19	A.p	M	36						4
20	A.p	F	26			G			4
21	A.p	M	29	OI					4
22	A.p	М	30						4

23	A.p	М	28				4
24	A.p	F	28		G		4
25	A.p	М	26	RL			4
26	A.p	М	34				4
27	A.p	М	26				4
28	A.p	F	32		G		4
29	A.p	F	30		G		4
30	A.p	М	34				4
31	A.p	М	26				4
32	A.p	М	28				4

	CRATFISH RECORDING FORIN											
Catchment	Wye		River	Offeiriad			Site reference	13				
	, , , , , , , , , , , , , , , , , , ,						Sheet					
Date	10/10/2014		Surveyors	DR LW			no.	3				
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method			
1	A.p	F	34			G		P1	1			
2	A.p	М	47					P1	1			
3	A.p	F	28			G		P1	1			
4	A.p	F	28			G		P2	1			
5	A.p	М	24	ML				P2	1			
6	A.p	М	42					P2	1			
7	A.p	F	23			G		P2	1			
8	A.p	М	34					P2	1			
9	A.p	М	19		BS			P2	1			
10	A.p	М	17					P2	1			
11	A.p	М	28e					P2	1			
12	A.p	М	42					P2	1			
13	A.p	М	41					P2	1			
14	A.p	М	42					P3	1			
15	A.p	М	35		PD			P3	1			
16	A.p	F	42			G		P3	1			
17	A.p	М	34					P3	1			
18	A.p	М	19					P3	1			
19	A.p	М	41					P3	1			
20	A.p	F	32			G		P3	1			
21	A.p	М	22					P3	1			
22	A.p	F	22			G		P3	1			
23	A.p	F	29			G		P3	1			
24	A.p	M	42					P3	1			
25	A.p	M	34					P3	1			
26	A.p	F	28	OM		G		P4	1			
27	A.p	М	44					P5	1			
28	A.p	М	26					P5	1			
29	A.p	М	37					P5	1			
30	A.p	М	30					P5	1			
31	A.p	М	38						4			
32	A.p	F	21	MR	PD				4			

33	A.p	F	35		G		4
34	A.p	F	26		G		4
35	A.p	F	37		G		4
36	A.p	М	33				4
37	A.p	М	25				4
38	A.p	М	27				4
39	A.p	F	31		G		4
40	A.p	М	34				4
41	A.p	М	32				4
42	A.p	М	31	MR			4
43	A.p	М	33				4
44	A.p	F	19		G		4
45	A.p	М	27				4

CRAYFISH RECORDING FORM

Catchment	Wye		River	River Offeiriad				13	
Date	10/10/2014		Surveyors	DR LW			Sheet no.	3a	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
46	A.p	М	35						4
47	A.p	F	26			G			4
48	A.p	М	28						4

Site 14

Catchment	Wye		River	Offeiriad			Site reference	14	
Date	10/10/2014		Surveyors	DR LW			Sheet no.	4	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	F	30	OI		G		P2	1
2	A.p	F	30			G		P2	1
3	A.p	М	29					P2	1
4	A.p	F	27			G		P2	1
5	A.p	F	29			G		P3	1
6	A.p	М	29					P3	1
7	A.p	F	31			G		P4	1
8	A.p	М	34		PD				4
9	A.p	F	27			G			4
10	A.p	F	28			G			4
11	A.p	М	35						4
12	A.p	М	24	ML					4
13	A.p	F	24			G			4
14	A.p	М	26						4

Site 15

CRAYFISH RECORDING FORM

Catchment	Wye		River	Offeiriad			Site reference	15	
Date	09/10/2014		Surveyors	DR LW			Sheet no.	5	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	М	21	AR				P4	1
2	A.p	М	39					P4	1
3	A.p	М	20					P5	1
4	A.p	F	31			G			4
5	A.p	М	28	ML					4
6	A.p	М	29						4
7	A.p	F	26			G			4
8	A.p	М	29						4
9	A.p	F	24			G			4
10	A.p	М	34						4
11	A.p	М	35						4
12	A.p	F	27	MR		G			4

Site 16

Catchment	Wye		River	Offeiriad			Site reference	16	
Date	09/10/2014		Surveyors	DR LW			Sheet no.	6	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	F	17		PD			P3	1
2	A.p	М	30						4
3	A.p	М	36						4
4	A.p	М	29						4
5	A.p	М	29						4
6	A.p	F	28			G			4
7	A.p	F	30			G			4
8	A.p	М	25	OI					4

10.6. Appendix F: Details of individual white-clawed crayfish records in Sgithwen Brook in October 2014 and September 2015

Site 6

CRAYFISH RECORDING FORM

Catchment	Wye		River	Sgithwen			Site reference	6	
Date	02/09/2015		Surveyors	DR LW			Sheet no.	2015/1	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	М	18					P2	4
2	A.p	F	32					P2	4

Site 7

CRAYFISH RECORDING FORM

Catchment	Wye		River	Sgithwen			Site reference	7	
Date	02/09/2015		Surveyors	DR LW			Sheet no.	2015/2	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	F	29					P1	4
2	A.p	М	30	ML				P1	4
3	A.p	М	19					P1	4
4	A.p	F	23	OL				P1	4
5	A.p	М	32		PD			P1	4
6	A.p	F	30	MR				P1	4
7	A.p	F	33					P1	4
8	A.p	М	19					P3	4
9	A.p	F	28					P3	4
10	A.p	F	31					P3	4
11	A.p	М	35					P4	4
12	A.p	F	29					P5	4
13	A.p	F	29				AM	P5	4

Site 8

Catchment	Wye		River	Sgithwen			Site reference	8	
Date	03/09/2015		Surveyors	DR LW			Sheet no.	2015/3	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A.p	М	42		PD			P1	4
2	A.p	F	33	MR				P1	4
3	A.p	F	36					P1	4

4	A.p	М	38			P2	4
5	A.p	F	17	MR		P2	4
6	A.p	F	44			P4	4
7	A.p	М	23	RL		P4	4

CRAYFISH RECORDING FORM

Catchment	Wye		River	Sgithwen			Site reference			
Date	16/10/2014		Surveyors	DR LW			Sheet no.	Sg1		
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method	
1	Ар	М	36					P5	1	
2	Ар	М	32					P5	1	
3	Ар	F	22			G		P5	1	
4	Ар	М	32						4	
5	Ар	М	36						4	
6	Ар	М	35						4	
7	Ар	М	30						4	

Site 10

CRAYFISH RECORDING FORM

Catchment	Wye		River	Sgithwen			Site reference	reference 10		
Date	16/10/2014		Surveyors	DR LW			Sheet no.			
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method	
1	Ар	F	21	OI	PD			P3	1	
2	Ар	F	17						4	
3	Ар	М	33						4	
4	Ар	М	30						4	

Site 11

	CRATFISH RECORDING FORM									
Catchment	Wye		River	Sgithwen			Site reference	1	1	
Date	16/10/2014		Surveyors	DR LW			Sheet no.	Sg 3		
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method	
1	Ар	М	19					P2	1	
2	Ар	М	19					P4	1	
3	Ар	F	36	RM		G		P5	1	
4	Ар	F	32			G			4	
5	Ар	F	31			G			4	
6	Ар	М	42						4	
7	Ар	М	34						4	
8	Ар	М	25	LM					4	

CRAYFISH RECORDING FORM

Catchment	Wye		River	Sgithwen			Site reference	1	2
Date	16/10/2014		Surveyors	DR LW			Sheet no.	Sg 4	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	Ар	М	33						4
2	Ар	F	36			G			4

Site 13

CRAYFISH RECORDING FORM

Catchment	Wye		River				Site reference	13	
Date	15/10/2014		Surveyors	DR LW			Sheet no.	Sg 5	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	Ар	М	23					P5	1
2	Ар	F	18						4
3	Ар	М	25						4
4	Ар	М	18						4

Site 14

Catchment	Wye		River	Sgithwen			Site reference	1	4
Catchinent	vvye		Kivei	Sgittiwen			Sheet	•	-
Date	15/10/2014		Surveyors	DR LW			no.	Sg 6	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	Ар	F	22			G		P1	1
2	Ар	F	17					P1	1
3	Ар	М	19					P1	1
4	Ар	М	16					P1	1
5	Ар	М	17					P1	1
6	Ар	М	17					P1	1
7	Ар	F	23			G		P2	1
8	Ар	М	16					P2	1
9	Ар	F	16					P2	1
10	Ар	М	16					P2	1
11	Ар	М	17					P2	1
12	Ар	М	18					P2	1
13	Ар	F	22			G		P2	1
14	Ар	F	16					P3	1
15	Ар	М	18					P3	1
16	Ар	F	17					P4	1
17	Ар	М	16					P5	1

18	Ар	М	40	LM RM			4
19	Ар	М	38				4
20	Ар	F	34			G	4
21	Ар	F	32			G	4
22	Ар	М	31				4
23	Ар	М	31				4
24	Ар	М	35				4
25	Ар	F	28			G	4
26	Ар	F	34			G	4
27	Ар	М	36		PD		4
28	Ар	F	32			G	4
29	Ар	F	34	LM		G	4
30	Ар	F	30			G	4
31	Ар	М	20				4
32	Ар	F	30			G	4
33	Ар	F	29			G	4
34	Ар	М	32				4
35	Ар	F	27				4
36	Ар	М	22				4
37	Ар	F	30				4
38	Ар	F	31			G	4
39	Ар	М	30				4
40	Ар	М	28				4
41	Ар	М	34	RM			

Catchment	Wye		River	Sgithwen			Site reference	14		
Date	15/10/2014		Surveyors	DR LW			Sheet no.	Sg 6a		
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method	
42	Ар	М	36	OM					4	
43	Ар	F	35			G			4	
44	Ар	М	18						4	
45	Ар	F	28			G			4	
46	Ар	М	20						4	
47	Ар	М	24						4	
48	Ар	М	24						4	
49	Ар	M	22		PD				4	
50	Ар	М	22						4	
51	Ар	F	24	RL					4	
52	Ар	F	28			G			4	
53	Ар	F	28			G			4	
54	Ар	М	28						4	

Site 15

	CRATFISH RECORDING FORM									
Catchment	Wye		River	Sgithwen			Site reference	1	5	
Date	15/10/2014		Surveyors	DR LW			Sheet no.	Sg 7		
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method	
1	Ар	F	32			G		P1	1	
2	Ap	F	19			G		P1	1	
3	Ap	М	18					P1	1	
4	Ap	М	18					P2	1	
5	Ар	М	17					P2	1	
6	Ар	М	18					P4	1	
7	Ар	М	16					P4	1	
8	Ар	F	27			G			4	
9	Ар	F	25			G			4	
10	Ар	М	34						4	
11	Ар	М	28						4	
12	Ар	F	20		PD				4	
13	Ар	F	16	LM					4	
14	Ар	F	26			G			4	
15	Ар	М	20						4	
16	Ар	М	28						4	
17	Ар	F	26			G			4	
18	Ар	F	18						4	
19	Ар	F	19			G			4	

10.7. Appendix G: White-clawed crayfish habitat survey forms for Afon Edw, October 2014.and August/September 2015

October 2014.an		YFISH HA		SURVEY	/ FORM	l			
	OKA.		DIIAI	CONVE		Site (no.,			
Catchment	Wye	River	Edw		r	name)			1
Date (dd/mm/yy)	Surveyor 27/08/2015 s	DR, LW				Grid ref. d/s end)	SO 0767 4	1694	
	Flow norr	m	Water	C	clarity,				
Weather, good 1, mod 2, poor 3	1, low 2, fai 1 3, rise 4		temp. oC		ood 1, mod , poor 3	1			
Photo ref. &					3	THE LAND	4		Day to
Location	Edw01								
					3				
Site length (m)	100								
	Descript.						400	1	
	features,			Access from	road			100	Section 2
Width channel (m)	6 landuse) sample patch 1	good and cl sample pate		sample patch	h 3 c	sample par	tch 4	sample pa	tch 5
Survey method, std 1, quad									
2, net/kick 3, trap 4, view 5	1 & 4	1 8	4	1 & 4	4	1 &	<u> </u>	1	& 4
Details (if not standard)		+							
Extent (I x w patch) Channel (1 margins, 2 mid, 3	2x1	3x2		2x2		1x3		2x2	
both, other specify)	1	2		3		2		2	
Depth (metres)	0.2	0.4		0.2		0.5		0.4	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5	4		4		4		3	
Refuges in channel	tick all present in patch, ma		ed in red						
cobble (6.5-15cm)		YES YES		YES YES		YES YES		YES YES	
cobble (15-25.6cm) boulder (25.6-40cm)		YES		YES		YES		YES	
boulder (>40cm)		YES		YES		YES		YES	
rubble (give size)	\(\(\)	\/F0				/F.O.			
woody debris other urban debris	YES	YES				YES			
tree roots, fine	YES								
moss		-							
filamentous algae other submerged veg.					-				
emergents									
Main substrate beneath	VE0.	VEC		VEO		/E0		VEO	
bedrock cobble (6.5-15cm)	YES	YES		YES	'`	YES		YES	
pebble (<6.5cm)									
gravel (<1.6cm)		+							
sand (<2mm) clay									
silt		YES							
Siltation none	YES	VEC		VEO		YES		YES	
low moderate		YES		YES					
high									
Refuges in bank none	YES	VEC		YES		/E0		YES	
cobble/boulder tree roots, large		YES				YES		<u> </u>	
vertical or undercut bank			<u></u>						
dry stone wall									
other reinforced crayfish burrows									
Shading above	MOD	MOD		MOD		MOD		MOD	
Crayfish/10 refuges, or per unit (depending on method)	0	0		0		0		1	
Search time (Mins)	5	5		5		5		5	
Bullhead present?	YES	YES		YES		YES		YES	
Evaluation crayfish habitat for whole site (0	Notes (su	rvey conditions, p	atches etc.):	Stone loach.	Mınk sprai	nt			
none, 1 pres., 2 freq., 3	_								
abund.) in margins	Score 3								
in mid channel	3								
in banks	3								
surveyability	3								
Problems pollution 1, erosion									
2, (E if >33% affected), aliens 3.									
Total crayfish (by 1 method, note total(s) by other methods in									
notes if applicable)	0								

		CRAY	FISH H	АВІТАТ	SURVE	Y FORI	И			
Catchment	Wye		River	Edw			Site (no., name)			2
Date (dd/mm/yy)	27/08/2015	Surveyor	DR, LW	Law			Grid ref.	SO 0847 4	1712	
Weather, good 1, mod 2, poor	21/00/2013	Flow norm 1, low 2, fall	,	Water		Clarity, good 1, mod	(are only)	30 0047	12	
Photo ref. &	1	3, rise 4	2	temp. oC	13	2, poor 3	1			
Location	Edw02, Roa	d bridge at	upstream e	nd						
Site length (m)	100	Descript. (channel features,	Good acce grazing; dis	sused sheep	o dip near r			100		
Width channel (m)	sample patc	landuse) h 1	Large areas		sample pat	tch 3	sample pat	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5								§ 4		§ 4
Details (if not standard)	1 &	4	1 8	x 4	10	<u> 4</u>	10	x 4	1 (x 4
Extent (I x w patch)	5x1		3x1		2x2		2x2		3x1	
Channel (1 margins, 2 mid, 3 both, other specify)	1		1		2		2		1	
							0.2			
Depth (metres) Feature (1 marg. d'water, 2	0.3		0.2		0.2				0.2	
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	tick all present	in notah, mair	4		5		4		4	
cobble (6.5-15cm)		in paten, maii	YES	led in red	YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)	YES						YES			
woody debris										
other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath	VEC		VEC		VEC		VEC		VEC	
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm) gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none										
low	YES		YES		YES		YES		YES	
moderate										
high										
Refuges in bank none	VEC				VEC				VEC	
cobble/boulder tree roots, large	150		YES		YES		YES		YES	
			110				110			
vertical or undercut bank										
dry stone wall other reinforced	YES									
crayfish burrows										
Shading above	LIGHT		LIGHT		LIGHT		LIGHT		LIGHT	
Crayfish/10 refuges, or per										
unit (depending on method)	0 5		10		0 5		0 10		5	
Search time (Mins) Bullhead present?	5		YES		5		YES		5	
Evaluation crayfish		Notes (sum	ey conditions, p	patches etc.)	Stone loach	Mink snr			<u> </u>	l.
habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion	Score 3 3 3 3 3 3									
2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

							Sita (na			
Catchment	Wye		River	Edw			Site (no., name)			3
Data (dd/mm/hu)	•	Surveyor	DD LW				Grid ref. (d/s end)	SO 0930 4	1707	
Date (dd/mm/yy)	23/08/2003	Flow norm	DR, LW			Clarity,	(a/s ena)	50 0930 2	1/6/	
Weather, good 1, mod 2, poor	1	1, low 2, fall 3, rise 4	_	Water temp. oC		good 1, mod 2, poor 3				
Photo ref. &		5, 1136 4		remp. oc	13]	z, pooi 3				
Location	Edw03							- AE	催去。	
							The land	- 54 Aug		- JA
Cita law ath (ma)	100									
Site length (m)	100									
		Descript.						- Single		-
		(channel						- Gran	-51387	
Width channel (m)	8	features, landuse)	Grazing and	d woodland	I. Good acce	SS			313	
	sample patc		sample pate		sample pate		sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1.8	2. 4	1 &	4	1 8	2. 1	1 1 2	§ 4
Details (if not standard)	1 0	-		<u> </u>	1 4	-		A T		A T
Extent (I x w patch)	2x2		2X2		3X1		3x3		2x5	
Channel (1 margins, 2 mid, 3										
both, other specify)	3		3		1		3		3	
Depth (metres)	0.2		0.2		0.2		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		5		4	
Refuges in channel	tick all present	in patch, mair	•							
cobble (6.5-15cm)			YES		YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm) boulder (>40cm)			YES YES		YES YES		YES YES		YES YES	
rubble (give size)			YES		YES		YES		YES	
woody debris										
other urban debris										
tree roots, fine moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath bedrock	VES		YES		YES		YES		YES	
cobble (6.5-15cm)	120		120		120		120		120	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm) clay										
silt										
Siltation none	YES		YES		YES				YES	
low							YES			
moderate high										
Refuges in bank none	YES		YES							
cobble/boulder		-				-	YES			
tree roots, large					YES				YES	
vertical or undercut bank										
dry stone wall other reinforced										
crayfish burrows										
Shading above	LIGHT		LIGHT		LIGHT		NIL		LIGHT	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	5		10		9		8		5	
Bullhead present?	YES		YES		YES		YES		YES	
Evaluation crayfish habitat for whole site (0		Notes (surv	ey conditions, p	oatches etc.);	Stone loach					
none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins in mid channel	3	•								
in banks	3									
surveyability	3									
Problems pollution 1, erosion										
2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method,		•								
note total(s) by other methods in notes if applicable)	0									
oo ii appiloabioj	<u>. </u>									

	(CRAYFISH H	IABITAT	SURVE	_		
Catchment	Wye	River	Edw		Site (no. name)	, 4	
Date (dd/mm/yy)		veyor DR LW			Grid ref.	SO 096	0 47 83
Weather, good 1, mod 2, poor	Flov 1, lo	w norm w 2, fall	Water	9	Clarity, good 1, mod		0 17 00
Photo ref. &	1 3, ris	se 4	2 temp. oC	13	2, poor 3	1	
Location	Immediately dov	vnstream of first 1	00m				
Site length (m)	100						4
	Des (cha featu						
Width channel (m)	9 land		ess from road		ah 2 sample n	estab 4 samp	la natab E
Survey method, std 1, quad	sample patch 1	sample pa		sample pate			le patch 5
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 & 4	1	& 4	1 &	4 1	8.4	1 & 4
Extent (I x w patch)	4x1	4)	0	2x2	5x	0	3x3
Channel (1 margins, 2 mid, 3		4)					
both, other specify)	1		3	1		1	3
Depth (metres) Feature (1 marg. dwater, 2	0.2	0.	.2	0.2	0.	2	0.3
pool, 3 glide, 4 run, 5 riffle)	4		3	5		3	3
Refuges in channel		tch, main type(s) sear	rched in red		1		
cobble (6.5-15cm) cobble (15-25.6cm)		YES		YES	YES YES	YES	
boulder (25.6-40cm)	_	YES YES		YES YES	YES	YES YES	
boulder (>40cm)		YES		YES	YES	YES	
rubble (give size)							
woody debris							
other urban debris	VE0.						
tree roots, fine moss	YES						
filamentous algae							
other submerged veg.							
emergents							
Main substrate beneath	\/F0	\/50		\/E0	\/50	\/F0	
bedrock cobble (6.5-15cm)	YES	YES		YES	YES	YES	
pebble (<6.5cm)							
gravel (<1.6cm)							
sand (<2mm)							
clay							
Siltation none	YES			YES		YES	
low	TEO	YES		ILO	YES	120	
moderate							
high							
Refuges in bank none cobble/boulder	VES	VEC		YES	VEC	VEC	
tree roots, large		YES		IES	YES	YES	
vertical or undercut bank							
dry stone wall							
other reinforced							
crayfish burrows		1100		LIE AVO.	1,100		0.4
Shading above Cravfish/10 refuges, or per	HEAVY	MOD		HEAVY	MOD	HEA	/ Y
unit (depending on method)	0		0	0		0	0
Search time (Mins)	15	\/50	5	10	1	0 //50	10
Bullhead present? Evaluation crayfish	Not	YES es (survey conditions	patches etc 19t	one loach Her	on I	YES	
habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	es (survey conditions	, paiories etc./or	one loach, riei	JII		
in margins	3						
in mid channel	3						
in banks surveyability	3						
our veyability	3						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.							
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0						

		CRAY	YFISH H	ABITAT	SURVE	Y FORI	М			
							Site (no.,			
Catchment	Wye	Surveyor	River	Edw			name) Grid ref.			5
Date (dd/mm/yy)	28/08/2015		DR LW				(d/s end)	SO 1012	4813	
Weather, good 1, mod 2, poor 3	1	Flow nom 1, low 2, fall 3, rise 4	2	Water temp. oC	13	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &										*
Location		/ downstrea	am of first 10	00m						-71
Site length (m)	100	Descript.	Cood coo	aa Diamia s	h.a					
Width channel (m)	9	features, landuse)	General Pu		areas, heavy	/ use by		10		
	sample pato	h 1	sample pate		sample pat	ch 3	sample pa	tch 4	sample pa	atch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not standard)	1 8	. 4	1 8	k 4	1 8	k 4	1 8	<u> </u>	1	& 4
Extent (I x w patch)	2x2		2x2		3x2		4x1		2x2	,
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		1		2	
Depth (metres)	0.2		0.3		0.2		0.2		0.3	<u> </u>
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		5		4		4		5	
Refuges in channel		in patch, mair	n type(s) search		4		4		1 5	'
cobble (6.5-15cm)		,	YES		YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris										
other urban debris tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm) gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	YES				YES		YES		YES	
low			YES							
moderate									1	
high Refuges in bank none					YES				YES	1
cobble/boulder	YES		YES		1123		YES		1123	+
tree roots, large										
vertical or undercut bank										
dry stone wall										
other reinforced										
crayfish burrows										
Shading above	MOD		LIGHT		LIGHT		LIGHT		NONE	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0			
Search time (Mins)	10		5		10		15		5	
Bullhead present?			YES				YES			
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel	Score 3	Notes (surv	ey conditions, ρ	oatches etc.);	Stone loach	, kingfishei				
in banks	3									
surveyability	3									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

		CRA	YFISH H	ABITAT	SURVE	Y FOR	И			
							Site (no.,			
Catchment	Wye	Surveyor	River	Edw			name) Grid ref.			6
Date (dd/mm/yy)	28/08/2015	s	DR LW				(d/s end)	SO 1056 4	1885	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4		Water temp. oC	13	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &			-							
Location Site length (m)	Edw05								T	
		Descript. (channel features,								
Width channel (m)		landuse)		ess. Grazing			a a manufa ma	tale 4		tolo F
Survey method, std 1, quad	sample patc		sample pat		sample pat		sample pa		sample pa	
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	. 4	1	& 4	1 8	<u>k</u> 4	1 8	& 4	1	& 4
Extent (I x w patch)	1x1		2x3	3	1x3		2x2		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	1		3	3	3		3		2	
Depth (metres)	0.2		0.3	3	0.3		0.3		0.2	
Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle)	3			1	3		4		4	
Refuges in channel	tick all present				3		4		4	
cobble (6.5-15cm)			YES		YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm) rubble (give size)	YES		YES		YES		YES		YES	
woody debris										
other urban debris										
tree roots, fine					YES					
moss										
filamentous algae other submerged veg.										
emergents										
Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm) gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	VE0		YES		VEO		VEO		YES	
moderate	YES				YES		YES			
high										
Refuges in bank none									YES	
cobble/boulder	YES		YES		YES		YES			
tree roots, large					YES					
vertical or undercut bank				-						-
dry stone wall other reinforced										
crayfish burrows										
Shading above	MOD		LIGHT		MOD		LIGHT		MOD	
Crayfish/10 refuges, or per unit (depending on method)	0)	0		0		0	
Search time (Mins)	5		10		5		10		10	
Bullhead present?	YES				YES		_			
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method,	Score 3 3 3 3 3 3	Notes (surv	ey conditions,	patches etc.);(Stone loach					
note total(s) by other methods in notes if applicable)	0									

		CRAY	/FISH H/	ABITAT	SURVE	Y FORI	М			
							Site (no.,			
Catchment	Wye	Surveyor	River	Edw	1		name) Grid ref.			7
Date (dd/mm/yy)	28/08/2015	s	DR LW				(d/s end)	SO 1113 4	1861	
Weather, good 1, mod 2, poor 3	1	Flow nom 1, low 2, fall 3, rise 4	2	Water temp. oC	14	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &			_	1011101					al de	
Location Site length (m)	Edw07									
		Descript. (channel features,								
Width channel (m)	sample patc	landuse) h 1	Good acces		sample pa		sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	. 4	1 8	4	1 8	§ 4	1 8	§ 4	1 8	<u>k</u> 4
Extent (I x w patch)	4x4		2x2		3x2		3x3		4x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		2		3		1	
Depth (metres)	0.3		0.3		0.4		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5		4		3		5	
Refuges in channel		in patch, mair	type(s) search							
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris					-					
other urban debris			YES						YES	
tree roots, fine moss			TES						IES	
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
Siltation none	YES		YES		YES		YES			
low									YES	
moderate					l				1	
high										
Refuges in bank none										
cobble/boulder	YES		YES		YES		YES		YES	
tree roots, large					—				YES	
vertical or undercut bank										
dry stone wall										
other reinforced					 				-	
crayfish burrows Shading above	LIGHT		MOD		MOD		MOD		LICHT	
Crayfish/10 refuges, or per	LIGITI		IVIOD		MOD		IVIOD		LIGHT	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	15		5		10		10		10	
Bullhead present?		N	YES	<u> </u>	<u></u>				YES	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks	Score 3 3 3 3 3	Notes (surv	ey conditions, p	atches etc.);	Stone loach					
Problems pollution 1, erosion	3									
 (E if >33% affected), aliens 3. Total crayfish (by 1 method, 										
note total(s) by other methods in notes if applicable)	0									

		CRA	YFISH H	ABITAT	SURVE	Y FORI	М			
Catchment	Wye		River	Edw			Site (no., name)			8
	28/08/2015	Surveyor	DR LW	Euw			Grid ref.	SO 1229 4	10.40	0
Date (dd/mm/yy) Weather, good 1, mod 2, poor	20/00/2013	Flow norm 1, low 2, fall		Water	40	Clarity,		30 1229 2	1940	
Photo ref. &	1	3, rise 4	1	temp. oC	13	2, poor 3	1	45		there is
Location	Edw08									
Site length (m)	100	Descript. (channel features,								2
Width channel (m)	7	landuse)			and woodla					
Survey method, std 1, quad	sample patc	h 1	sample pat	ch 2	sample pat	ch 3	sample pa	tch 4	sample pat	ch 5
2, net/kick 3, trap 4, view 5	1 &	4	1 8	& 4	1.8	k 4	1 8	<u> </u>	1.8	k 4
Details (if not standard)										
Extent (I x w patch)	3x1		2x3	3	4x1		3x2		3x3	
Channel (1 margins, 2 mid, 3 both, other specify)	1		3	3	1		3		3	
Depth (metres) Feature (1 marg. d'water, 2	0.2		0.3	5	0.2		0.3		0.3	
pool, 3 glide, 4 run, 5 riffle)	4		3		5		4		5	
Refuges in channel	tick all present	in patch, mair		hed in red	1/50		\/F0		\/F0	
cobble (6.5-15cm) cobble (15-25.6cm)			YES YES		YES YES		YES YES		YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)	120		120		120		120		120	
woody debris										
other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
Siltation none	YES		YES		YES		YES		YES	
low	120		120		120		120		120	
moderate										
high										
Refuges in bank none			YES		ļ					
cobble/boulder					YES		YES		YES	
tree roots, large	TEO									
vertical or undercut bank										
dry stone wall other reinforced										
crayfish burrows										
Shading above	LIGHT		LIGHT		MOD		LIGHT		LIGHT	
Crayfish/10 refuges, or per unit (depending on method)										
Search time (Mins)	0 15		5		0 15		5		5	
Bullhead present?	YES			,	YES		YES		3	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3		Notes (surv	ey conditions,	patches etc.);		, kingfishei				
abund.)	Score									
in margins	3									
in mid channel	3									
in banks surveyability	3									
our vey ability	3									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method,										
note total(s) by other methods in notes if applicable)	0									

	CRA	YFISH H	ABITAT	SURVEY	FORM		
					Site (no.,		
Catchment	Wye	River r	Edw		name) Grid ref.		9
Date (dd/mm/yy)	29/08/2015 s	DR LW			(d/s end)	SO 1260 4969	
Weather, good 1, mod 2, poor 3	Flow no 1, low 2, f 1 3, rise 4	all	Water temp. oC		rity, d 1, mod oor 3		
Photo ref. &	., .		, itompi oo	.0	1.7		
Location Site length (m)	Edw09						
Width channel (m)	(channel features, 5 landuse)	Difficult ac	cess, steep	bank and fenc	es.		
	sample patch 1	sample pat		sample patch	3 sample pa	tch 4 sample patch	15
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 & 4	1	& 4	1 & 4	1.5	3.4 1.8.4	1
Details (if not standard)	1 0 4	'	α 4	104		104	
Extent (I x w patch)	3x1	3x1	1	2x2	2x2	4x1	
Channel (1 margins, 2 mid, 3 both, other specify)	1	1		2	2	1	
Depth (metres)	0.2	0.2	2	0.3	0.2	0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)							
Refuges in channel	3 tick all present in patch, n		thed in red	4	3	3	
cobble (6.5-15cm)		YES		YES	YES	YES	
cobble (15-25.6cm)		YES		YES	YES	YES	
boulder (25.6-40cm)	YES	YES		YES	YES	YES	
boulder (>40cm)	YES	YES		YES	YES	YES	
rubble (give size)	1/=0	1,50					
woody debris	YES	YES					
other urban debris tree roots, fine							
moss							
filamentous algae							
other submerged veg.							
emergents							
Main substrate beneath	1/=0	1.750		\.=a	\/=0	\a	
bedrock	YES	YES		YES	YES	YES	
cobble (6.5-15cm) pebble (<6.5cm)							
gravel (<1.6cm)							
sand (<2mm)							
clay							
silt							
Siltation none	VE0	\/F0		\/F0	\/50	\/F0	
	YES	YES		YES	YES	YES	
moderate high		+					
Refuges in bank none	YES	YES		YES	YES	YES	
cobble/boulder							
tree roots, large							
vertical or undercut bank							
dry stone wall							
other reinforced		+					
crayfish burrows Shading above	NONE	NONE	-	MOD	NONE	NONE	
Crayfish/10 refuges, or per	INOINE	NONE	-	MOD	NONE	NONE	
unit (depending on method)	0	(-	0	0	0	
Search time (Mins)	5	10)	10	10	5	
Bullhead present? Evaluation crayfish	Notes (s	INPV conditions	natches etc.\:	Stone loach, he	uron	YES	
habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	Score 3	arvey conditions,	pateries etc.).	Storie toach, he	eron		
in mid channel	3						
in banks	3						
surveyability	3						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.							
Total crayfish (by 1 method, note total(s) by other methods in							
notes if applicable)	0						

Catchment Wive Surveyor State (no. part) 10			CRAY	/FISH H	ABITAT	SURVE	Y FORI	И			
Date (dd/mm/yy)	Catalyment	Wyo		Divor	Edu						10
State length (m)		S			Euw			Grid ref.			10
Vicinity Vicinity	Date (dd/mm/yy)			DR LW			Clarity	(d/s end)	SO 1248 5	118	
Site length (m)	Weather, good 1, mod 2, poor 3	1,	, low 2, fall	1		13	good 1, mod	1			
Site length (m) 100 Descript Land use - cattle grazing, Cattle poaching immediately downstream of site. Access down very steep field.									TY.		4
Descript Cahmer											
Survey method, set 1, sues 1 & 4	Site length (m)				•	•					
Survey method, stid 1, quad 2, zeroktick 3, tang 4, wes 5	Width channel (m)	fe	eatures,			ım of site. A	ccess				
2	Commence and the second second second	sample patch	1	sample pate	ch 2	sample pat	tch 3	sample pa	tch 4	sample pa	atch 5
Extent (it is patch)	2, net/kick 3, trap 4, view 5	1 & 4	1	1 8	k 4	1 8	<u>k</u> 4	1 8	<u>k</u> 4	1	& 4
Channel (I margine, 2 mid. 3 bitch, diver specific (1 might diverse), 2 bitch, diverse (1 might diverse), 2 bitch,	,										
Exit		2x1		3x3		4x1		2x5		1x4	1
Feature (1 marg dwater, 2 moot, 3 gilles, 4 m., 5 fille)		1		3		1		3		3	3
Dool. 3 glide. 4 tum, 5 millio 2		0.3		0.4		0.2		0.25		0.3	3
Refuges in channel		2		3		2		4		-]
cobble (15-25,6-6-0) YES			patch, mair		-						,
Doubler (26,6-4,0cm) YES	cobble (6.5-15cm)	YES		YES		YES				YES	
rubble (give size) woody debris YES ves voody debris YES ves vers other urban debris tree roots, fine moss filamentous algae other submerged veg. mergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (-6.5cm) gravel (-1.6cm) sand (-2mm) sand (-2mm) sand (-2mm) sand (-2mm) filit by YES y	` '										
rubble (give size)	` '										
VES VES	, , ,	YES		YES		YES		YES		YES	
other urban debris tree roots, fine moss	(8	VEQ				VEQ					
Tree roots, fine moss YES YE	-	ILS				ILO					
Main substrate beneath bedrock YES Y											
filamentous algae other submerged veg.				YES				YES			
other submerged veg. emergents Main substrate beneath bedrock cobble (6-5.15cm) pebble (<6.5cm) gravel (<1.6cm) sand (<2mm) clay silt Sitation none low YES YES YES YES YES YES YES YES YES		YES				YES				YES	
Main substrate beneath bedrock YES	other submerged veg.										
Dedrock Cobble (6.5-15cm) Debble (-6.5cm) Debble (-6.5cm)											
Cobble (6.5-15cm) pebble (-6.5cm) gravel (-1.6cm) gravel (-1.6cm) sand (-2mm) clay silt											
pebble (<6.5cm) gravel (<1.6cm) sand (<2mm) clay sit Sitation none low WES WES YES YES YES YES YES YES YES YES YES Y		YES		YES		YES		YES		YES	
gravel (<1.6cm) sand (<2mm) clay sitt Siltation none low YES YES YES YES YES moderate high Refuges in bank none cobble/boulder tree roots, large vertical or undercut bank dry stone wall other reinforced crayfish for refuges, or per unit (depending on method) Search time (Mins) Sullhead present? Evaluation crayfish In margins in margins in mid channel in banks surveyability Total crayfish by 1 method, Sitt YES YES YES YES YES YES YES YES	,										
sand (<2mm) clay silt Siltation none low yES yES YES YES YES YES moderate high Refuges in bank none cobble/boulder tree roots, large vertical or undercut bank dry stone wall other reinforced crayfish burrows Shading above Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) Search time (Mins) In margins in mid channel in banks 3 surveyability Total crayfish (by 1 method,) Siltation None YES YES YES YES YES YES YES YES YES YES YES YES YES Notes (survey conditions, patches etc.): Stone loach											
clay silt Siltation none low YES	J (,	-									
Siltation none low YES YES YES YES YES YES YES YES MODE And the reinforced crayfish burrows Shading above Crayfish for eluges, or per unit (depending on method) Search time (Mins) Evaluation crayfish habitat for whole site (none, 1 pres, 2 freq., 3 abund.) In margins in mid channel in banks surveyability Total crayfish by 1 method, Siltation none low YES	, , ,										
Siltation none low moderate high											
moderate high Refuges in bank none cobble/boulder YES											
Refuges in bank none cobble/boulder tree roots, large vertical or undercut bank dry stone wall other reinforced crayfish burrows Shading above MOD HEAVY MOD MOD MOD Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) 5 10 10 10 15 5 Bullhead present? YES YES YES Evaluation crayfish habitat for whole site (none, 1 pres., 2 freq., 3 abund.) in margins in banks surveyability Total crayfish (by 1 method, 4 10 10 10 10 10 10 10 10 10 10 10 10 10	low	YES		YES		YES		YES		YES	
Refuges in bank none cobble/boulder tree roots, large vertical or undercut bank dry stone wall other reinforced crayfish burrows Shading above Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) Bullhead present? Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in banks surveyability Total crayfish (by 1 method,											
cobble/boulder tree roots, large vertical or undercut bank dry stone wall other reinforced crayfish burrows Shading above MOD HEAVY MOD MOD MOD Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) 5 10 10 15 5 Builhead present? YES YES VES YES Notes (survey conditions, patches etc.): Stone loach habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability 3 Total crayfish (by 1 method,								\/EC			
tree roots, large		VEC		VEC		VEC		YES		VEC	
vertical or undercut bank dry stone wall other reinforced crayfish burrows Shading above Crayfish/flo refuges, or per unit (depending on method) Search time (Mins) Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) In margins in margins in margins in banks surveyability Total crayfish (by 1 method,		159				IES					
dry stone wall other reinforced crayfish burrows Shading above MOD HEAVY MOD MOD MOD Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) 5 10 10 10 15 5 Bullhead present? YES YES YES Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel 3 in banks survey ability Total crayfish (by 1 method,				123						123	
other reinforced crayfish burrows Shading above MOD HEAVY MOD MOD MOD Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) 5 10 10 15 5 Bullhead present? YES YES YES YES Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) In margins in mid channel 3 in banks surveyability Total crayfish (by 1 method,											
Crayfish burrows Shading above MOD HEAVY MOD MOD MOD MOD MOD O O O O O Search time (Mins) Bullhead present? Evaluation crayfish habitat for whole site (none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Total crayfish (by 1 method,											
Shading above MOD HEAVY MOD MOD MOD Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) Notes (survey conditions, patches etc.): Stone loach											
unit (depending on method) Search time (Mins) Bullhead present? Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Total crayfish (by 1 method,	Shading above	MOD		HEAVY		MOD		MOD		MOD	
Search time (Mins) 5 10 10 15 5 Bullhead present? YES YES YES YES Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Total crayfish (by 1 method,											
Bullhead present? Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Total crayfish (by 1 method,	· · · -										
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Total crayfish (by 1 method,						10		15			,
in banks 3 surveyability 3 Total crayfish (by 1 method,	habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	Score 3	Notes (surve	ey conditions, p	patches etc.);	Stone loach					
surveyability 3 Total crayfish (by 1 method,											
Total crayfish (by 1 method,											
note total(s) by other methods in notes if applicable) 0	Total crayfish (by 1 method, note total(s) by other methods in										

Catchment	Wye		River	Edw			Site (no., name)		11	
Date (dd/mm/yy)	14/10/2014	Surveyors	DR LW				Grid ref.	SO 12602 52	2787	
Weather, good 1, mod 2, poor 3	2	Flow norm 1, low 2, fall 3, rise 4	4					Start and finish time	1500-1700	
Photo ref. &								2		
Location	At 300m							11	-	
Site length (m)	400	Descript.								
Width channel (m)	5	features, landuse)						4年7年	No.	
	sample patch 1		sample par	tch 2	sample pa	tch 3	sample patch	4	sample patch	5
Survey method, std 1, quad 2, net/kick 3, trap 4,	4.0	4	4 9 4		4 9 4	ı	4 0	4	4.0	4
view 5 Details (if not	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4	4
standard) Extent (I x w										
patch)	5x1		3x1		5x1		2x2		4x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		1		1		1		3	
							-			
Depth (metres) Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	0.3		0.2		0.3		0.3		0.2	
Refuges in					<u> </u>		4		4	
channel cobble (6.5-15cm)	tick all present in YES	patch, main type(s	YES	in red	YES		YES		YES	
cobble (0.5-13cm) cobble (15- 25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6- 40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)	YES		YES		YES		YES		YES	
woody debris										
other urban debris									YES	
tree roots, fine										
moss										
filamentous algae other submerged										
veg.										
emergents]					
Main substrate beneath										
bedrock									_	

cobble (6.5-15cm)						
pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)						
clay						
silt	YES		YES	YES	YES	YES
Siltation	123		123	123	123	123
none						
low						
moderate	YES		YES	YES	YES	YES
high						
Refuges in bank						
none			1			
cobble/boulder			YES	YES	YES	
tree roots, large	YES		YES			YES
vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		MOD	MOD	MOD	MOD
	IVIOD		T	T INIOB	WIGE	Web
Crayfish manually						
Crayfish by trap			•	•	•	<u> </u>
Total crayfish						
caught		Natas (sumusu		t- \.		
Evaluation		Notes (survey o	conditions, patche	es etc.):		
crayfish habitat for whole site (0						
none, 1 pres., 2						
freq., 3 abund.)	Score					
in margins	2					
in mid channel	2					
in banks	2					
surveyability	2					
Problems						
pollution 1, erosion 2, (E if						
>33% affected),						
aliens 3. Total crayfish (by						
1 method, note						
total(s) by other						
methods in notes	0					
if applicable)	1 0	l .				

	CRAYFISH HABITAT SURVEY FORM											
						Site (no.,						
Catchment	Wye		River	Edw		name)		12				
Date (dd/mm/yy)	14/10/2014	Surveyors	DR LW			Grid ref.	SO 12384 5	3394				
		Flow norm 1,										
Weather, good 1,		low 2, fall 3,					Start and	1000 1500				
mod 2, poor 3	2	rise 4	4			100 SEC 100 SEC	finish time	1300-1500				
Photo ref. &						100						
Location	In first 100m					西京 《卷》		The second				
							10	M. K.				
							No.	10000000000000000000000000000000000000				
Site length (m)	400											
						300	11/2/2014					
		Descript. (channel				S 27/1/	135	MAN AND AND AND AND AND AND AND AND AND A				
		features,	Series of po	ols wit	th slow flowing	25 Contract						
Width channel (m)	5	landuse)	glides		-	To de la sant		MARKET				
0	sample patch 1		sample patc	:h 2	sample patch 3	sample patch 4		sample patch 5				
Survey method, std 1, quad 2,												
net/kick 3, trap 4,												
view 5 Details (if not	1 &	. 4	1 & 4		1 & 4	1 &	4	1 & 4				
standard)												
Extent (I x w	2x1		3x1		3x2	2v1		2x1				
patch) Channel (1	ZXI		3X1		3XZ	3x1		ZXI				
margins, 2 mid, 3												
both, other specify)	1		1		3	1		1				
Depth (metres) Feature (1 marg.	0.2		0.2		0.3	0.2		0.2				
d'water, 2 pool, 3												
glide, 4 run, 5 riffle)	3		3		2	3		3				
Refuges in						3						
channel	tick all present in	patch, main type		n red	1			Τ				
cobble (6.5-15cm) cobble (15-	YES		YES		YES	YES		YES				
25.6cm)	YES		YES		YES	YES		YES				
boulder (25.6-	VE0.		\/F0		VEO			VEO				
40cm)	YES		YES		YES	YES		YES				
boulder (>40cm)	YES		YES		YES	YES		YES				
rubble (give size) woody debris	YES				YES							
other urban debris	TES				TES							
	VES		YES		YES	VEQ		YES				
tree roots, fine	YES		IES		IEO	YES		IEO				
moss												
filamentous algae other submerged												
veg.												
emergents												
Main substrate beneath												
bedrock	YES		YES									
cobble (6.5-15cm)			1.20									

		ı	1		1	1
pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)						YES
clay						
silt				YES	YES	
Siltation				1.20	1.20	
none						
low						
moderate	YES		YES	YES	YES	YES
high						
Refuges in bank none						
cobble/boulder			YES		YES	
tree roots, large			YES			YES
vertical or	\/=0			\/=0		
undercut bank	YES			YES		
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	LIGHT		LIGHT	HEAVY	HEAVY	MOD
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation		Notes (survey of	conditions, patche	s etc.):		
crayfish habitat						
for whole site (0 none, 1 pres., 2						
freq., 3 abund.)	Score					
in margins	2					
in mid channel	2					
in banks	2					
surveyability	2					
Problems						
pollution 1,						
erosion 2, (E if >33% affected),						
aliens 3.						
Total crayfish (by						
1 method, note total(s) by other						
methods in notes						
if applicable)	0					

	CRAYFISH HABITAT SURVEY FORM											
							Site (no.,					
Catchment	Wye		River	Edw			name)		13			
5								20 4224= ==				
Date (dd/mm/yy)	14/10/2014	Surveyors	DR, LW				Grid ref.	SO 12047 53	3816			
Weather, good 1, mod 2, poor 3	2	Flow norm 1, low 2, fall 3, rise 4	4					Start and finish time	1100 - 1300			
Photo ref. &							A STATE OF THE PARTY OF THE PAR	一种的	- A			
Location	In first 100m.						NAME OF THE PARTY OF	ATTEMPT	一个理解	5/4		
Site length (m) Width channel (m)	400	Descript. (channel features, landuse)	Land use - grazing with stock access. sample patch 2 sample patch									
Width Gridinier (III)	sample patch 1	idilddoc)		tch 2	sample pa	tch 3	sample patch	4	sample patch 5			
Survey method, std 1, quad 2, net/kick 3, trap 4,	1 &	4										
view 5 Details (if not	1 &	7	1 & 4		1 & 4		1 &	7	1 & 4			
standard)												
Extent (I x w patch)	5x1		7x1		2x2		2x2		5x1			
Channel (1 margins, 2 mid, 3 both, other												
specify)	1		1		3		2		1			
Depth (metres)	0.2		0.2		0.2		0.3		0.2			
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		5		4		3			
Refuges in channel	tick all present in	notch oin typo(a) coorobod i	n rad								
cobble (6.5-15cm)	tick all present in	pateri, airi type(s	YES	nieu	YES		YES		YES			
cobble (15-												
25.6cm) boulder (25.6-	YES		YES		YES		YES		YES			
40cm)	YES		YES		YES		YES		YES			
boulder (>40cm)	YES		YES		YES		YES		YES			
rubble (give size)	YES		YES		YES		YES		YES			
woody debris												
other urban debris												
tree roots, fine												
moss												
filamentous algae												
other submerged veg.												
emergents												
Main substrate beneath												
bedrock			YES		YES		YES					
cobble (6.5-15cm)												

	i	ı		i	1	•
pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)	YES					YES
clay						
silt						
Siltation none						
				YES		VEC
low	\/F0		\/F0	YES	\/F0	YES
moderate	YES		YES		YES	
Refuges in bank none						
cobble/boulder						
tree roots, large			YES	YES	YES	YES
vertical or undercut bank	YES					
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		MOD	LIGHT	LIGHT	MOD
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (survey co	onditions, patche	s etc.):		
in margins	2					
in mid channel	2					
in banks	2					
surveyability	2					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0					
	<u> </u>					

CRAYFISH HABITAT SURVEY FORM											
Catchment	Wye		River	Edw			Site (no., name)		14		
Date (dd/mm/yy)	14/10/2014	Surveyors	DR LW				Grid ref.	SO 11549 5	55871		
Weather, good 1, mod 2, poor 3	2	Flow norm 1, low 2, fall 3, rise 4	4					Start and finish time	0900-1100		
Photo ref. &								EXCEPTED TO	11/4		
Location	In first 100m						35				
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Good acce	stock ss fro	access to wa m road bridge	е				からなるという	
Survey method,	sample patch 1		sample par	tch 2	sample pat	tch 3	sample patch 4		sample patch 5		
std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4		
Details (if not standard)											
Extent (I x w patch)	3x2		3x2		3x2		4x2		4x2		
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3		
Depth (metres)	0.2		0.2		0.3		0.2		0.3		
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		3		2		2		3		
Refuges in channel	tick all present in	natch main type/s	e) searched i	n red							
cobble (6.5-15cm)	YES	pateri,mairi type (e	YES	irred	YES		YES		YES		
cobble (15- 25.6cm)	YES		YES		YES		YES		YES		
boulder (25.6- 40cm)	YES		YES		YES		YES		YES		
boulder (>40cm)	120		YES		120		120		120		
rubble (give size)											
woody debris	YES		YES								
other urban debris											
tree roots, fine	YES		YES		YES		YES		YES		
moss											
filamentous algae other submerged veg.											
emergents											
Main substrate beneath			T		T				I		
bedrock											
cobble (6.5-15cm)							YES				

	1		1	1	1	ı
pebble (<6.5cm)						
gravel (<1.6cm)	YES		YES			
sand (<2mm)						
clay						
silt				YES		YES
Siltation						
none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none	YES		YES	YES		YES
cobble/boulder					YES	
tree roots, large					YES	
vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		MOD	HEAVY	HEAVY	HEAVY
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (survey of Only dead cray	conditions, patche fish found; no mo	es etc.): Approxim pribund. Wye and	ately 6 years ago local Usk Foundation inform	resident reported crayfish mortality. ed but no cause identified.
in margins	3					
in mid channel	3					
in banks	3					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected),						
aliens 3. Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0					

CRAYFISH HABITAT SURVEY FORM											
						Site (no.,					
Catchment	Wye		River	Edw		name)		15			
Date (dd/mm/yy)	13/10/2014	Surveyors	DR LW			Grid ref.	SO 12632 5	7817			
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1				Start and finish time	1500-1700			
Photo ref. &		1100 4					TITIOTI WITH	1000 1700			
Location	In first 100m					1000					
Site length (m) Width channel (m)	100 2.5	Descript. (channel features, landuse)	stock access deep pools a Some mud b crayfish burre	s in ai ind sm anks v ows.			comple notch 4				
	sample patch 1		sample patch	n 2	sample patch	3 sample patch	4	sample patch 5			
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not	1 &	4	1 & 4		1 & 4	1 8	k 4	1 & 4			
standard)											
Extent (I x w patch)	5x1		3x2		4x2	6x2		3x2			
Channel (1 margins, 2 mid, 3 both, other specify)	1		3		3	3		3			
Depth (metres)	0.3		0.3		0.3	0.2		0.4			
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		3 3		3		3				
Refuges in			<i>(</i>)								
channel	tick all present in	patch, main type		n rea	\/F0	VE0		VE0			
cobble (6.5-15cm) cobble (15-	YES		YES		YES	YES		YES			
25.6cm)	YES		YES		YES	YES		YES			
boulder (25.6- 40cm)	YES		YES		YES	YES		YES			
boulder (>40cm)	YES		YES		YES	YES		YES			
rubble (give size)											
woody debris											
other urban debris											
tree roots, fine	YES		YES		YES	YES					
moss											
filamentous algae											
other submerged veg.											
emergents											
Main substrate beneath											
bedrock											
cobble (6.5-15cm)											

	•		ı	1	1	
pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)						
clay						
silt	YES	YE	S	YES	YES	YES
Siltation						
none						
low						
moderate	YES					
high		YE	S	YES	YES	YES
Refuges in bank none				YES	YES	
cobble/boulder						
tree roots, large		YE	S			YES
vertical or undercut bank	YES	YE	S	YES	YES	YES
dry stone wall				-		-
other reinforced						
crayfish burrows						
Shading above	LOW	HE	AVY	MOD	HEAVY	HEAVY
Crayfish						
manually						
Crayfish by trap Total crayfish						
caught						
Evaluation		Notes (survey condi	tions, patches e	tc.):		
crayfish habitat						
for whole site (0 none, 1 pres., 2						
freq., 3 abund.)	Score					
in margins	3					
in mid channel	3					
in banks	3					
surveyability	3					
Problems						
pollution 1, erosion 2, (E if						
>33% affected),						
aliens 3.						
Total crayfish (by 1 method, note						
total(s) by other						
methods in notes if applicable)	0					
п аррпсавіе)	1 0					

CRAYFISH HABITAT SURVEY FORM										
						Site (no.,				
Catchment	Wye		River	Edw	,	name)		16		
Date (dd/mm/yy)	13/10/2014	Surveyors	DR LW			Grid ref.	SO 13203 5	7976		
		Flow norm								
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	1				Start and finish time	1300-1500		
Photo ref. &	I	3, fise 4					IIIIISII UIIIE	1300-1300	30	
Location	In first 100m									
Location	III III St. TOOIII								15	
								大大主要		
								The Tale	100	
Site length (m)	100							1.50		
							10.10			
		_							1	
		Descript. (channel								
		features,	Land use gra	azing a	and woodland.	37		2		
Width channel (m)	3	landuse)	Highly agricu			No. of the last of	A CONTROL			
Survey method,	sample patch 1		sample patch	h 2	sample patch 3	sample patch	4	sample patch 5		
std 1, quad 2,										
net/kick 3, trap 4,	4.0	4	404		4.9.4	4.0	4	4.0.4		
view 5 Details (if not	1 &	4	1 & 4		1 & 4	1 8	. 4	1 & 4		
standard)										
Extent (I x w patch)	3x1		3x1		4x1	2x2		4x2		
Channel (1	OA1		OX1		77.1	ZAZ.		TAL		
margins, 2 mid, 3 both, other										
specify)	1		2		1	3		1		
Depth (metres)	0.2		0.3		0.2	0.2		0.2		
Feature (1 marg.	0.2		0.3		0.2	0.2		0.2		
d'water, 2 pool, 3										
glide, 4 run, 5 riffle)	4		3		3	5		2		
Refuges in										
channel	tick all present in	patch, main type		n red	1./=0					
cobble (6.5-15cm) cobble (15-	YES		YES		YES	YES		YES		
25.6cm)	YES		YES		YES	YES		YES		
boulder (25.6- 40cm)	YES		YES		YES	YES		YES		
boulder (>40cm)	YES		YES		YES	YES		YES		
rubble (give size)	. =0					0				
woody debris	YES		YES		YES	YES		YES		
other urban debris					. = -					
tree roots, fine	YES				YES			YES		
moss										
filamentous algae										
other submerged										
veg.										
emergents Main substrate										
Main substrate beneath										
bedrock										
cobble (6.5-15cm)										

	1	i	Ī	1	i	1
pebble (<6.5cm)						
gravel (<1.6cm)					YES	
sand (<2mm)						
clay	YES		YES	YES		YES
silt						
Siltation none						
low						
moderate	YES		YES	YES	YES	YES
high						
Refuges in bank none						
cobble/boulder						
tree roots, large vertical or undercut bank	YES		YES	YES	YES	YES
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	MOD	MOD	MOD
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (survey of substrate.	conditions, patch	es etc.):Variable p	atches with lots of faller	n trees. Deep stone layer to reach
in margins	3					
in mid channel	3					
in banks	3					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes						
if applicable)	0					

10.8. Appendix H: White-clawed crayfish habitat survey forms for Nant yr Offeiriad, October 2014.

		CRAYFIS	ВН НАВІТАТ	SUF	RVEY FORM			
						Site (no.,		
Catchment	Wye		River	Offe	eiriad	name)	1	
						Grid ref.		
Date (dd/mm/yy)	13/10/2014	Surveyors	DR LW			(d/s end)	SO 096	50 43123
		Flow norm					Start	
Weather, good 1,		1, low 2, fall 3, rise					and finish	
mod 2, poor 3	1	4	1				time	1100-1300
Photo ref. &						No. of the last	No.	
Location	view upstream	from roadbrid	ge			S. The	Late 1	
Site length (m)	100							
Width channel (m)	5	Descript. (channel features, landuse)	Land use urban. Ott	- woo ers kı	rough garden. dland and nown to be in bitat present.			
	sample patch 1		sample patch 2		sample patch 3	sample patch 4		sample patch 5
Survey method, std 1,								
quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4	1 &	4	1 & 4
Details (if not standard)								
Extent (I x w patch)	1x3		2x2		2x2	3x1		3x2
Channel (1 margins, 2 mid, 3 both, other specify)	3		2		3	1		3
Depth (metres)	0.3		0.4		0.2	0.1		0.3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	1		3		4	4		3
Refuges in channel	tick all present	in patch, mair	n type(s) sea	rche	d in red			
cobble (6.5-15cm)	YES		YES		YES	YES		YES
cobble (15-25.6cm)	YES		YES		YES	YES		YES
boulder (25.6-40cm)	YES		YES		YES	YES		YES
boulder (>40cm)	YES		YES		YES	YES		YES
rubble (give size)	YES		YES		YES	YES		YES
woody debris								
other urban debris								YES
tree roots, fine	YES		YES					YES
moss								YES
filamentous algae								
other submerged veg.								
emergents								
Main substrate beneath								
bedrock								YES
cobble (6.5-15cm)								
(2.2.2.2.3)					l			

pebble (<6.5cm)	1		1	Ī		
gravel (<1.6cm)	YES		YES	YES	YES	
sand (<2mm)			1.20	1.20		
clay						
Siltation						
none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none						
cobble/boulder			YES	YES	YES	YES
tree roots, large	YES			YES	YES	YES
vertical or undercut bank	YES				YES	
dry stone wall						YES
other reinforced						
crayfish burrows						
Shading above	MOD		MOD	MOD	MOD	MOD
One Cale manually						
Crayfish manually						
Crayfish by trap Total crayfish						
caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surve	ey conditions,	patches etc.):		
in margins	3					
in mid channel	3					
in banks	3					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1						
method, note total(s) by other methods in notes if applicable)	0					

CRAYFISH	HARITAT	SURVEY	FORM

Catchment	Wye		River	Offe	eiriad	Site (no., name)	2	
Date (dd/mm/yy)	13/10/2014	Surveyors	DR LW			Grid ref.	SO 09542	42629
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1			9110 101.	Start and finish	0900-1100
Photo ref. &						-		
Location	Mid Point at fo	otbridge					Zarene .	
Site length (m)	100						· · · · · · · · · · · · · · · · · · ·	
Width channel (m)	6	Descript. (channel features, landuse)	woodland.	footpa Series ne very	th. Landuse - s of riffles and			
	sample patch 1		sample patch 2		sample patch 3	sample patch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	. 4	1 & 4		1 & 4	1 &	4	1 & 4
Details (if not standard)								
Extent (I x w patch)	1x6		3x3		6x1	5x2		3x2
Channel (1 margins, 2 mid, 3 both, other specify)	3		2		1	3		3
Depth (metres)	0.3		0.2		0.2	0.3		0.3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		5		2	3		3
Refuges in channel		tick	all present in	n patch	n, main type(s) s	searched in re	d	
cobble (6.5-15cm)	YES		YES		YES	YES		YES
cobble (15-25.6cm)	YES		YES		YES	YES		YES
boulder (25.6-40cm)	YES		YES		YES	YES		YES
boulder (>40cm)	YES		YES		YES	YES		YES
rubble (give size)	YES		YES		YES	YES		YES
woody debris								
other urban debris								
tree roots, fine								
moss								
filamentous algae								
other submerged veg.						1		
emergents Main substrate						1		
Main substrate beneath								
bedrock	YES		YES		YES	YES		YES
cobble (6.5-15cm)								
pebble (<6.5cm)						1		
gravel (<1.6cm)								

sand (<2mm)						
clay						
silt						
Siltation none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none						YES
cobble/boulder	YES		YES	YES	YES	
tree roots, large						
vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	HEAVY	HEAVY	HEAVY
Crayfish manually						
Crayfish by trap Total crayfish						
caught						
		Notes (surve	ey conditions, page	atches etc.):		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score					
in margins	3					
in mid channel	2					
in banks	1					
surveyability	2					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0					

		010/1111011	, (В, (1.0	OKVET FORIVI			
					Site (no.,		
Catchment	Wye		River	Offeiriad	name)	3	
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW		Grid ref.		926 42561
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1	_		Start and finish time	1500-1700
Photo ref. &						and the same	CONTRACTOR OF THE
Location	In 1st 100m						
Site length (m)	100			ery difficult eld and down			
Width channel (m)	7	Descript. (channel features, landuse)	very stee bank. Ex surveyab	p woodland			State Control of the
	sample patch 1		sample patch 2	sample patch 3	sample patch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	. 4	1 & 4	1 & 4	1 &	4	1 & 4
Details (if not standard)							
Extent (I x w patch)	1x8		3x3	8x1	4x3		5x2
Channel (1 margins, 2 mid, 3 both, other specify)	3		2	1	3		3
Depth (metres)	0.3		0.3	0.1	0.2		0.3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4	4	2		2
Refuges in		tick all	Il present in patch, main type(s) searched in red				

channel	tick all	present in patch	, main type(s) sea	rched in red	
cobble (6.5- 15cm)	YES	YES	YES	YES	YES
cobble (15- 25.6cm)	YES	YES	YES	YES	YES
boulder (25.6- 40cm)	YES	YES	YES	YES	YES
boulder (>40cm)	YES	YES	YES	YES	YES
rubble (give size)					
woody debris					
other urban debris					
tree roots, fine					
moss					
filamentous algae					
	1 1	·	·		D

	1	T	1	ı	
other submerged					
veg.					
emergents					
Main substrate					
beneath		_	_		
bedrock				YES	YES
cobble (6.5-					
15cm)					
pebble (<6.5cm)					
gravel (<1.6cm)	YES	YES	YES		
sand (<2mm)					
clay					
silt					
Siltation					
none					
low	YES	YES	YES	YES	YES
	125	1.5	120	1120	1120
moderate		1			
high		1			
Refuges in bank	YES	YES	YES	YES	YES
none	_		_	_	_
cobble/boulder		 1			
tree roots, large					
vertical or					
undercut bank					
dry stone wall					
other reinforced					
crayfish burrows					
Shading above	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY
Crayfish					
manually					
Crayfish by trap		•	•	•	•
Total crayfish					
caught					
Evaluation					
crayfish habitat					
for whole site (0	Score				
none, 1 pres., 2					
freq., 3 abund.)					
in margins	2				
in mid channel	2				
in banks	1				
surveyability	3				
Problems pollution					
1, erosion 2, (E if					
>33% affected),					
aliens 3. Total crayfish (by					
1 method, note					
total(s) by other	0				
methods in notes if					
applicable)					

Catchment	Wye		River	Offe	eiriad	Site (r		4	
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW			Grid r	of	SO 0850	96 42386
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1			Onu i	CI.	Start and finish time	1300-1500
Photo ref. &					_	200			1 To 100
Location	In 1st 100m					(Sec.			
Site length (m)	100								
								100	
Width channel (m)	7	Descript. (channel features, landuse)	Access downwoodland a good habit	anks. I and gr	and use -				
	sample patch 1		sample patch 2		sample patch 3	sampl patch			sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4
Details (if not standard)									
Extent (I x w patch)	1x7		3x3		6x1	;	3x2		1x7
Channel (1 margins, 2 mid, 3 both, other specify)	3		2		1		2		3
Depth (metres)	0.3		0.3		0.1		0.3		0.3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		5		4		3		4
Refuges in channel		tick	all present in	n patch	n, main type(s) searched	in re	d	
cobble (6.5-15cm)	YES		YES		YES	YES			YES
cobble (15-25.6cm)	YES		YES		YES	YES			YES
boulder (25.6-40cm)	YES		YES		YES	YES			YES
boulder (>40cm)	YES		YES		YES	YES			YES
rubble (give size)									
woody debris									
other urban debris									
tree roots, fine									
moss									
filamentous algae									
other submerged veg.									
Main substrate beneath									
bedrock									
cobble (6.5-15cm)	YES		YES		YES	YES			YES
pebble (<6.5cm)									
gravel (<1.6cm)							-		<u> </u>

	I					
sand (<2mm)						
clay						
silt						
Siltation						
none	\/50		\/F0	1/50	\/F0	\/50
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none	YES		YES	YES	YES	YES
cobble/boulder						
tree roots, large vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	HEAVY	HEAVY	HEAVY
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Caugiii		Notes (surve	ey conditions, pat	ches etc.):		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	,		,		
in margins	3					
in mid channel	3					
in banks	0					
surveyability	2					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0					

		CRAYFISI	HABITAT S	SURV	FY FORM			
		ORATIO	IIIABIIAI	JOIN 1	LI I OKIII	Site		
Catchment	Myro		River	Offe	iriad	(no., name)	5	
Catchinent	Wye		Rivei	One	illau	name)	-	
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW			Grid ref.	SO 0822	24 42923
777							Start	
Weather, good 1, mod		Flow norm 1, low 2,					and finish	
2, poor 3	1	fall 3, rise 4	1				time	1100 - 1300
Photo ref. &						-270 Million	100000000000000000000000000000000000000	colors are the second second second
Location	Upstream end							张文 () []
Site length (m)	100							
One longin (m)							The same	
Width channel (m)	6	Descript. (channel features, landuse)	Access goo Land use g woodland. river.	grazing	g and			
	sample patch 1		sample patch 2	Г	sample patch 3	sample patch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4	1 8	. 4	1 & 4
Details (if not standard)								
Extent (I x w patch)	3x2		1x5		5x1	1x6		3x3
Channel (1 margins, 2 mid, 3 both, other specify)	1		3		1	3		2
Depth (metres)	0.2		0.2		0.1	0.3		0.2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	2		5		4	4		4
Refuges in channel		tick a	all present in	patch	, main type(s) s	earched in re	ed	
cobble (6.5-15cm)	YES		YES		YES	YES		YES
cobble (15-25.6cm)	YES		YES		YES	YES		YES
boulder (25.6-40cm)	YES		YES		YES	YES		YES
boulder (>40cm)	YES		YES		YES	YES		YES
rubble (give size)	YES		YES		YES			
woody debris								
other urban debris								
tree roots, fine								
moss								
filamentous algae								
other submerged veg.								
emergents Main substrate beneath								
bedrock								
cobble (6.5-15cm)						1		
pebble (<6.5cm)								

YES

YES

YES

gravel (<1.6cm)

YES

YES

sand (<2mm)						
clay						
silt						
Siltation none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none						
cobble/boulder	YES		YES	YES	YES	YES
tree roots, large vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		HEAVY	MOD	MOD	MOD
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surve	ey conditions, pa	atches etc.):		
in margins	3					
in mid channel	3					
in banks	1					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0					

		CRATFISI	HABITAL	SURVE	FORIVI				
Catchment	Wye		River	Offeiria	ıd		Site (no., name)	6	
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW				Grid ref.		1 43093
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	0900-1100
Photo ref. &		Í					20 TANAGE	BESS COM COLOR	SHEET TO SHEET THE SHEET
Location	In 1st 100m					1			
Site length (m)	100								
Width channel (m)	4	Descript. (channel features, landuse)	Access good Landuse good Shaded on stock on of	razing fo one side	r sheep. e open to				
	sample patch 1		sample patch 2		ample atch 3		sample patch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4
Details (if not standard)									
Extent (I x w patch) Channel (1 margins, 2	2x2		4x2		4x2		2x2		5x1
mid, 3 both, other specify)	2		2		2		1		2
Depth (metres)	0.2		0.3		0.2		0.2		0.3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		4		4
Refuges in channel		tick a	all present in	patch, n	nain type((s) sea	arched in red	d	
cobble (6.5-15cm)	YES		YES	Y	ES		YES		YES
cobble (15-25.6cm)	YES		YES	Y	ES		YES		YES
boulder (25.6-40cm)	YES		YES	Υ	ES		YES		YES
boulder (>40cm)	YES		YES	Y	ES		YES		YES
rubble (give size)									
woody debris									
other urban debris									
tree roots, fine	YES								
moss								· 	
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath			I	1					
bedrock									
cobble (6.5-15cm)	YES		YES	Y	ES		YES		YES
pebble (<6.5cm)									
gravel (<1.6cm)									

	Г	_		ı	
sand (<2mm)					
clay					
silt					
Siltation					
none .	YES	YES	YES	YES	YES
low	150	169	169	TES	152
moderate					
high					
Refuges in bank none					
cobble/boulder			_	YES	YES
tree roots, large	YES	YES	YES		
vertical or undercut bank					
dry stone wall					
other reinforced					
crayfish burrows					
Shading above	MOD	MOD	HEAVY	HEAVY	MOD
Crayfish manually					
Crayfish by trap					
Total crayfish caught					
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score				
in margins	2				
in mid channel	3				
in banks	2				
surveyability	3				
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note total(s) by other methods in	0				
by other methods in notes if applicable)	0				

		CRATFISE	HABITAL	SUKV	ET FORIVI				
Catchment	Wye		River	Offe	eiriad		Site (no., name)	7	
Date (dd/mm/yy)	11/10/2014	Surveyors	DR LW				Grid ref.		77 42979
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	1500-1700
Photo ref. &		·							
Location	Upstream end							The state of	No.
Site length (m)	100							/X	
Width channel (m)	5	Descript. (channel features, landuse)	use - wood	dland. erfalls	and pools -			***	
	sample patch 1		sample patch 2		sample patch 3		sample patch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4
Details (if not standard)									
Extent (I x w patch) Channel (1 margins, 2	2x5		2x5		5x3		4x3		4x3
mid, 3 both, other specify)	2		2		3		1		1
Depth (metres)	0.3		0.3		0.2		0.2		0.2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		3		4		4
Refuges in channel		tick a	all present in	patch	n, main type	(s) se	arched in re	d	
cobble (6.5-15cm)	YES		YES		YES		YES		YES
cobble (15-25.6cm)	YES		YES		YES		YES		YES
boulder (25.6-40cm)	YES		YES		YES		YES		YES
boulder (>40cm)	YES		YES		YES		YES		YES
rubble (give size)									
woody debris	YES						YES		
other urban debris									
tree roots, fine									
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath							1		1
bedrock	VEO		VE2		VE2		VEC		VEO
cobble (6.5-15cm)	YES		YES		YES		YES		YES
pebble (<6.5cm)							<u> </u>		
gravel (<1.6cm)	l								

1 (O)					
sand (<2mm)					
clay					
silt					
Siltation none					
low	YES	YES	YES	YES	YES
	120	120	120	120	120
moderate					
high Refuges in bank					
none					YES
cobble/boulder	YES		1		
tree roots, large		YES	YES	YES	
vertical or undercut					
bank					
dry stone wall					
other reinforced					
crayfish burrows					
Shading above	MOD	MOD	MOD	MOD	MOD
Crayfish manually					
Crayfish by trap		 			
Total crayfish caught					
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score				
in margins	3				
in mid channel	3				
in banks	1				
surveyability	3				
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1					
method, note total(s) by other methods in notes if applicable)	0				

Catchment	Wye		River	Offe	eiriad		Site (no., ame)	8	
Date (dd/mm/yy)	11/10/2014	Surveyors	DR LW			6	Grid ref.	SO 069	33 42733
Weather, good 1, mod 2, poor 3	11/10/2014	Flow norm 1, low 2, fall 3, rise 4	1	_			ma ici.	Start and finish time	1300-1500
Photo ref. &	Downstream e		· ·			_		uiiie	1300-1300
Location							1		190
Site length (m)	100								
Width channel (m)	5	Descript. (channel features, landuse)		ng an	nd bridge. Land d woodland. oughout.	d			43
	sample patch 1		sample patch 2		sample patch 3		ample atch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4
standard)									
Extent (I x w patch)	3x3		2x4		3x4		2x3		3x2
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		2		2
Depth (metres)	0.2		0.2		0.2		0.3		0.3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		5		5		4		4
Refuges in channel		tick	all present in	patc	h, main type(s	s) searc	ched in re	d	<u>.</u>
cobble (6.5-15cm)	YES		YES		YES	Y	'ES		YES
cobble (15-25.6cm)	YES		YES		YES		'ES		YES
boulder (25.6-40cm)	YES		YES		YES	-	'ES		YES
boulder (>40cm)	YES		YES		YES	Y	'ES		YES
rubble (give size)							'ES		
woody debris						Y	E8		
other urban debris	YES				YES		'ES		
tree roots, fine	123				123	'			
moss									
filamentous algae									
other submerged veg.									
Main substrate beneath									
bedrock	VEQ		VEC		VEC		′EQ		VEQ
cobble (6.5-15cm)	YES		YES		YES	Y	'ES		YES
pebble (<6.5cm)									1
gravel (<1.6cm)	I .								D

sand (<2mm)						
clay						
silt						
Siltation						
none	VEC		VEC	VEC	VEC	YES
low	YES		YES	YES	YES	165
moderate						
high						
Refuges in bank none						
cobble/boulder	YES		YES	YES	YES	YES
tree roots, large	YES				YES	
vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	HEAVY	HEAVY	HEAVY
Crayfish manually						
Crayfish by trap						
Total crayfish						
caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score					
in margins	3					
in mid channel	3					
in banks	2					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0					

		OKATTIO	IIIABIIAI	301(1	ET FORIVI		Site			
							(no.,			
Catchment	Wye		River	Offe	eiriad		name)	9		
Date (dd/mm/yy)	11/10/2014	Surveyors	DR LW				Grid ref.		64 42414	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	1100 - 1300	
Photo ref. &								-		
Location	Mid point									
Site length (m)	100		Access go	od via	ı road bridge	_				
Width channel (m)	4	Descript. (channel features, landuse)	Fully shaded on left bank with some erosion. Right side field with occasional shading. Land use - grazing . Good habitat throughout.							
	sample patch 1		sample patch 2		sample patch 3		sample patch 4		sample patch 5	
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 8	4.4	1 & 4	
Details (if not standard)	144									
Extent (I x w patch) Channel (1 margins, 2	2x3		2x4		2x4		3x1		3x3	
mid, 3 both, other specify)	2		2		3		3		1	
Depth (metres)	0.3		0.2		0.3		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		4		5	
Refuges in channel		tick all present in patch, main type(s) searched in red								
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-40cm)	YES		+		YES YES			YES		
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)									VEC	
woody debris									YES	
other urban debris tree roots, fine	YES									
moss										
filamentous algae										
other submerged veg.										
emergents Main substrate										
beneath			1		1		1		1	
bedrock	YES		YES		VEC		VES		VEC	
cobble (6.5-15cm)	120		YES YES			YES		YES		
pebble (<6.5cm) gravel (<1.6cm)			<u> </u>		<u> </u>		<u> </u>			
graver (<1.00111)	I									

		1			
sand (<2mm)					
clay					
silt					
Siltation					
none	VE0.	YES	VE0.	V/E0	VEO
low	YES	YES	YES	YES	YES
moderate					
high					
Refuges in bank none					
cobble/boulder	YES	YES	YES	YES	YES
tree roots, large	YES	YES	YES	YES	YES
vertical or undercut bank					
dry stone wall					
other reinforced					
crayfish burrows					
Shading above	MOD	HEAVY	HEAVY	MOD	HEAVY
Crayfish manually					
Crayfish by trap					
Total crayfish caught					
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score				
in margins	2				
in mid channel	3				
in banks	2				
surveyability	3				
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	2				
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0				

CRAYFISH HABITAT SURVEY FORM									
						Site (no.,			
Catchment	Wye		River	Offe	eiriad	name)	10		
Date (dd/mm/yy)	11/10/2014	Surveyors Flow norm	DR LW			Grid ref.	SO 0586	61 42621	
		1, low 2,					and		
Weather, good 1, mod	1	fall 3, rise 4	1				finish time	0900-1100	
2, poor 3 Photo ref. &	In 1st 100m	4	<u> </u>			_	ume	0900-1100	
	l						04 17 78		MENT E
Location						Z			
	100					100		A STATE	職
								The state of the s	-11
Site length (m)							-10-0	Auto -	1
						4	44.4	5	
							A SUL	10 P	167
Width channel (m)	3	Descript. (channel	Access do	wn ste avily v	eep wooded vooded with	STATE OF THE STATE OF			
		features,	many large	tree	roots. Land use	9			
		landuse)	- grazing, s	stock	access to river.				
	sample patch 1		sample patch 2		sample patch 3	sample patch 4		sample patch 5	
Survey method, std 1,	paterri		paicii 2		paterra	paici 4		ракиз	
quad 2, net/kick 3,									
trap 4, view 5	1 &	4	1 & 4		1 & 4	1 &	4	1 & 4	
Details (if not standard)									
Extent (I x w patch) Channel (1 margins, 2	3x3		3x3		4x2	3x3		3x3	
mid, 3 both, other	2		2		1	3		3	
specify)									
Depth (metres)	0.4		0.4		0.2	0.25		0.3	
Feature (1 marg.									
d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		4		4	3		4	
_		tick	all procent in	nate	h, main type(s)	coarched in re	.d		
Refuges in channel	V50	lick		paic		1	·u	VE0	
cobble (6.5-15cm)	YES		YES		YES	YES		YES	
cobble (15-25.6cm)	YES		YES		YES	YES		YES	
boulder (25.6-40cm)	YES		YES		YES	YES		YES	
boulder (>40cm)	YES								
rubble (give size)	VEC				VEC				
woody debris	YES				YES				
other urban debris			\/F2						
tree roots, fine			YES						
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath									
bedrock	YES								
cobble (6.5-15cm)			YES		YES	YES		YES	
pebble (<6.5cm)			1.20		. 20	1.20		1.20	
gravel (<1.6cm)									
graver (< 1.00111)	1		l			1		I	

sand (<2mm)						
clay						
silt						
Siltation none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none						
cobble/boulder	YES			YES	YES	YES
tree roots, large			YES	YES	YES	YES
vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	HEAVY	HEAVY	HEAVY
Crayfish manually						
Crayfish by trap Total crayfish						
caught						
		Patch 1, dov 9.	vnstream end o	f site was on bed	rock with fewer refuç	ges. Patch 2 like Site
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score					
in margins	3					
in mid channel	3					
in banks	3					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0					

CRAYFISH HABITAT SURVEY FORM									
					Site (no.,				
Catchment	Wye		River	Offeiriad	name)	11			
Catorimoni	VVYC		TUVOI	Onomaa	name)				
Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW		Grid ref.	SO 0526	69 43142		
Date (dd/IIIII/yy)	10/10/2014	Surveyors	DK LVV		Gild lei.	Start	19 43 142		
		Flow norm				and			
Weather, good 1, mod		1, low 2,				finish			
2, poor 3	1	fall 3, rise 4	1			time	1500 - 1700		
Photo ref. &					Sen Z	organica de la companya del companya de la companya del companya de la companya d	7 000 1000		
Location	Downstream e	nd			A ENGLIS		District No.		
					A William	CALLE SOUTHERN			
					Contract of				
	100								
					-		The state of the s		
Site length (m)					100	/ m			
One length (III)					A STATE OF	also 5			
					At Line		0		
140		December	A 11						
Width channel (m)	3	Descript. (channel		ough farmyard. La g adjacent to	ina				
		features,	farmvard.	Site just upstream	of				
		landuse)	farmyard.	, ,					
	sample		sample	sample	sample		sample		
	patch 1		patch 2	patch 3	patch 4		patch 5		
Survey method, std 1,									
quad 2, net/kick 3, trap									
4, view 5	1 &	4	1 & 4	1 & 4	1	& 4	1 & 4		
Details (if not									
standard)									
Extent (I x w patch)	4x3		3x3	4x3	4x3		4x3		
Channel (1 margins, 2	17.0		0/10	17.0	ixe		17.0		
mid, 3 both, other	3		2	3	2		3		
specify)									
Depth (metres)	0.3		0.3	0.3	0.3		0.3		
Feature (1 marg.									
d'water, 2 pool, 3	4		4	5	4		4		
glide, 4 run, 5 riffle)									
Refuges in channel		tick a	all present in	patch, main type(s) searched in i	ed			
_	YES		YES	YES	YES		YES		
cobble (6.5-15cm)	YES		YES	YES	YES		YES		
cobble (15-25.6cm)									
boulder (25.6-40cm)	YES		YES	YES	YES		YES		
boulder (>40cm)									
rubble (give size)									
woody debris									
other urban debris									
tree roots, fine									
moss									
filamentous algae									
other submerged veg.									
emergents Main substrate				L					
beneath									
bedrock	VEC		VEC	VEC	VEO		VEC		
cobble (6.5-15cm)	YES		YES	YES	YES		YES		
pebble (<6.5cm)									
gravel (<1.6cm)									
	•			•					

sand (<2mm)						
` '						
clay silt						
Siltation						
none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none						
cobble/boulder	YES		YES	YES	YES	YES
tree roots, large	YES		YES	YES	YES	YES
vertical or undercut bank	YES		YES	YES	YES	YES
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		LIGHT	MOD	MOD	MOD
Crayfish manually						
Crayfish by trap				8		
Total crayfish caught		Nata de la composi	er en el Como en en	8		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	notes (surve	ey conditions, pa	atches etc.):		
in margins	3					
in mid channel	3					
in banks	3					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	8					

Catchment Wye			CRAYFISH	HABITAT S	SURV	EY FORM	0:1-		1
Date (dd/mm/yy)							Site		
Flow norm Flow	Catchment	Wye		River	Offe	eiriad		12	
Flow norm Flow		,							
Vestiner, good 1, mod 1 1 1 1 1 1 1 1 1	Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW			Grid ref.	SO 046	35 43457
Veather, good 1, mod 1 fall 3, rise 4 1									
Photo ref. & Location	Mosther good 1 mod								
Photo ref. & Location In 1st 100m 100		1		1					1300-1500
Location		-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				TM05000	ADDRESS A WASHING	
Site length (m) 3		In 1at 100m					- 10/1/16		
Site length (m) 3 Descript. (channel features.) Good access across steep field. Land use - grazing and woodland Sample patch 1 Sample patch 2 patch 3 patch 4 patch 5 patch 4 patch 4 patch 5 patch 4	Location	111 151 100111							
Site length (m) 3 Descript. (channel features, landuse) Sample patch 1 Sample patch 2 Sample patch 3 Sample patch 4 Sample patch 5 Sample patch 4 Sample patch 5 Sample patch 6 Sample patch 6 Sample patch 7 Sample patch 8 Sample patch 9 Sample pat								22	
Site length (m) 3 Descript. (channel features, landuse) Sample patch 1 Sample patch 2 Sample patch 3 Sample patch 4 Sample patch 5 Sample patch 4 Sample patch 5 Sample patch 6 Sample patch 6 Sample patch 7 Sample patch 8 Sample patch 9 Sample pat		100						以 學一	
Width channel (m) 3 Descript. (channel fadures. I land use - grazing and woodland woodl		100						-	
Width channel (m) 3 Descript. (channel fadures. I land use - grazing and woodland woodl	Site length (m)						1		10000000000000000000000000000000000000
Channel Chan	One length (III)						500 B	1	
Channel Chan							S. Company		
Channel Chan	Width channel (m)	3	Descript						
Ianduse	Width channel (III)			Good acce	ss ac	ross steep field.			
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5					grazi	ng and			
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5			landuse)						
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5									
quad 2, net/kick 3, trap 4, view 5 1 & 4		paten i		paich 2		paich 3	paich 4		paich 5
1									
Details (if not standard)		1 &	4	1 & 4		1 & 4	1 8	. 4	1 & 4
Extent (I x w patch) 3x2	Details (if not								
Channel (1 margins, 2 mid, 3 both, other specify)	standard)								
Channel (1 margins, 2 mid, 3 both, other specify)	Extent (Lx w patch)	3x2		2x2		3x1	5x2		3x3
Depth (metres) 0.4 0.3 0.3 0.2 0.3 Feature (1 marg. divater, 2 pool, 3 gilde, 4 run, 5 riffle) 5 4 4 5 5 Refuges in channel cobble (6.5-15cm) cobble (15-25.6cm) boulder (25.6-40cm) boulder (>40cm) rubble (give size) woody debris other urban debris tree roots, fine moss filamentous algae other submerged veg. emergents Dedrock cobble (6.5-15cm) pebble (<6.5-t)cm pebble (<6.5-	Channel (1 margins, 2	<u> </u>				<u> </u>	0		<u> </u>
Depth (metres)		3		3		1	1		2
Depth (Hetres) Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle) Searched in red Sea	specify)								
Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle)	Depth (metres)	0.4		0.3		0.3	0.2		0.3
Sefuges in channel Sefuges									
Refuges in channel cobble (6.5-15cm) cobble (15-25.6cm) boulder (25.6-40cm) boulder (>40cm) rubble (give size) woody debris other urban debris filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm) respectively filamentous in patch, main type(s) searched in red tick all present in patch, main type(s) searched in red YES YES YES YES YES YES YES YE	d'water, 2 pool, 3	5		4		4	5		5
cobble (6.5-15cm) YES			tiols s	ll propont in	notok		aarahad in ra	. d	
YES	=		lick a		pater		_	eu	1
Doulder (25.6-40cm)	` ' '								
Doulder (>40cm)	cobble (15-25.6cm)	YES		YES		YES	YES		YES
rubble (give size) woody debris other urban debris tree roots, fine moss filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)	boulder (25.6-40cm)	YES		YES		YES	YES		YES
rubble (give size) woody debris other urban debris tree roots, fine moss filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)	boulder (>40cm)					YES			
woody debris other urban debris tree roots, fine moss filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)									
other urban debris tree roots, fine moss filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)									
tree roots, fine moss filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)									
moss filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)		YES		YES		YES	YES		YES
filamentous algae other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)						. 20	1.25		. 20
other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)									
emergents Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)							1		
Main substrate beneath bedrock cobble (6.5-15cm) pebble (<6.5cm)	other submerged veg.								
beneath bedrock (6.5-15cm) pebble (<6.5cm)									
bedrock cobble (6.5-15cm) pebble (<6.5cm)	Main substrate								
cobble (6.5-15cm) pebble (<6.5cm)									
pebble (<6.5cm)							-		
	cobble (6.5-15cm)								
gravel (<1.6cm) YES YES YES YES	pebble (<6.5cm)								
	gravel (<1.6cm)	YES		YES		YES	YES		YES

sand (<2mm)						
clay						
silt						
Siltation none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none						
cobble/boulder				YES	YES	YES
tree roots, large						
vertical or undercut bank	YES		YES			
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		MOD	MOD	MOD	MOD
Crayfish manually	1		3	4	2	
Crayfish by trap				22		
Total crayfish caught				32		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Patch 1 - ear	rth banks on righ	t side		
in margins	3					
in mid channel	3					
in banks	2					
surveyability	3					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	32					

	CRAYFISH HABITAT SURVEY FORM									
		CRATFIS	T HADITAT	SURVE	TORIVI	Site				
Catchment	Wye		River	Offeir	iad	(no., name)	13			
Catchinent	vvye		Rivei	Olleli	iau	name)	13			
Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW			Grid ref.	SO 03771	43539		
(Flow norm					Start			
Weather, good 1, mod		1, low 2, fall 3, rise					and finish			
2, poor 3	1	4	1				_	1100-1300		
Photo ref. &										
	la 4at 400aa					05	Messa.			
Location	In 1st 100m					美人	1			
	100					43				
						Man 1	and the	200 S TO S		
Site length (m)						42.5				
						14				
					lerately steep	A STATE OF	A STATE OF THE STA	44 100000000000000000000000000000000000		
Width channel (m)	3	Descript. (channel	wooded bawoodland							
		features,	limited sto	ck acce	ss to water.					
		landuse)			ellent habitat.					
	sample patch 1		sample patch 2		sample patch 3	sample patch 4		sample oatch 5		
Survey method, std 1,	paterri		paterrz		pateri 3	paten 4	,	Dateri 5		
quad 2, net/kick 3,										
trap 4, view 5	1 &	4	1 & 4		1 & 4	1 &	4	1 & 4		
Details (if not standard)										
,										
Extent (I x w patch) Channel (1 margins, 2	3x3		2x3		3x3	3x3		3x2		
mid, 3 both, other	3		3		3	3		3		
specify)										
Depth (metres)	0.3		0.3		0.2	0.2		0.2		
Feature (1 marg.	2		4		4	4				
d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		4		4	4		5		
Refuges in channel		tick	all present ir	n patch,	main type(s) se	arched in re	d .			
cobble (6.5-15cm)	YES		YES		YES	YES	,	YES		
cobble (15-25.6cm)	YES		YES		YES	YES	-	YES		
boulder (25.6-40cm)	YES		YES		YES	YES	•	YES		
boulder (>40cm)										
rubble (give size)										
woody debris	YES					YES	,	YES		
other urban debris										
tree roots, fine	YES		YES		YES	YES				
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate			<u>l</u>			<u> </u>				
beneath						1	1			
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)										

YES

YES

YES

YES

gravel (<1.6cm)

YES

sand (<2mm)						
clay						
silt						
Siltation						
none	VEO		VEO	V/E0	VEO	VE0
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none			YES			
cobble/boulder						
tree roots, large vertical or undercut bank	YES			YES	YES	YES
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	HEAVY	MOD	HEAVY
Crayfish manually	3		10	12	1	4
Crayfish by trap			L	18		
Total crayfish caught				48		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Patch 1 & 2 I installed and this site	had earth banks w it is believed that	rith no crayfish bu otters have starte	rrows. An otter holt ha d to use it. Photo of c	is recently been rayfish found at
in margins	3		DATE OF THE PARTY OF		Part Control	8
in mid channel	3			100		
in banks	3				阿尔斯斯	
surveyability	3		Wall.			20
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1						
method, note total(s) by other methods in notes if applicable)	48					

CRAYFISH HABITAT SURVEY FORM								
Catchment	Wye		River	Offeiriad	Site (no., name)	14		
Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW		Grid ref.	SO 03000 43674		
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1		Silia ici.	Start and finish time 0900-1100		
Photo ref. &								
Location		In 1	st 100m			TWINE WAY		
Site length (m)	100		use moorlar	moorland. Land ad grazing and stock access				
Width channel (m)	1	Descript. (channel features, landuse)						
	sample patch 1		sample patch 2	sample patch 3	sample patch 4	sample patch 5		
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not	1 &	4	1 & 4	1 & 4	1 &	4 1 & 4		
standard)								
Extent (I x w patch)	6x1		4x1	5x1	6x1	6x1		
Channel (1 margins, 2 mid, 3 both, other specify)	3		3	3	3	3		
Depth (metres)	0.1		0.2	0.2	0.2	0.2		
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		4	4	4	4		
Refuges in channel				patch, main types				
cobble (6.5-15cm)	YES			YES		YES		
cobble (15-25.6cm)	YES		YES	YES	YES	YES		
boulder (25.6-40cm)	YES YES		YES YES	YES	YES	YES		
boulder (>40cm) rubble (give size)	120		120					
woody debris					YES			
other urban debris								
tree roots, fine								
moss								
filamentous algae								
other submerged veg.	YES		YES	YES	YES	YES		
Main substrate beneath								
bedrock								
cobble (6.5-15cm)								
pebble (<6.5cm)	VEC		VEC	VEC	VEC	VEC		
gravel (<1.6cm)	YES		YES	YES	YES	YES		

	I		ı	1	1	İ
sand (<2mm)						
clay						
silt						
Siltation						
none .	YES		YES	YES	YES	YES
low	11.5		11.5	11.3	TLO	11.5
moderate						
high						
Refuges in bank none						
cobble/boulder						
tree roots, large						
vertical or undercut bank	YES		YES	YES	YES	YES
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	NONE		NONE	NONE	NONE	NONE
			4	2	1	
Crayfish manually				<u> </u>		
Crayfish by trap				7		
Total crayfish caught				14		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surve	y conditions, patc	nes etc.):		
in margins	2					
in mid channel	3					
in banks	3					
surveyability	2					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	14					

		CRAYFISH	HABITAT	SURVEY FORM	1			
Catchment	Wye		River	Offeiriad		Site (no., name)	15	
Date (dd/mm/yy)	09/10/2014	Surveyors	DR LW			Grid ref.	SO 026	20 43857
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1	_	_		Start and finish time	1100-1300
Photo ref. & Location	In 1st 100m					137	4	NO WY
Site length (m)	400m						1	

Width channel (m)	1	(channel features, landuse)	Access good water. Ver boulders/stones			
	sample patch 1		sample patch 2	sample patch 3	sample patch 4	sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4	1 & 4	1 & 4	1 & 4
Details (if not standard)						
Extent (I x w patch)	3x1		4x1	5x1	5x1	7x1
Channel (1 margins, 2 mid, 3 both, other specify)	3		3	3	3	3
Depth (metres)	0.2		0.2	0.2	0.2	0.2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4	4	4	4

Descript. (channel

Refuges in channel	tick all	present in patch, i	ring main type(s)	searched in red	
cobble (6.5-15cm)	YES	YES	YES	YES	YES
cobble (15-25.6cm)	YES	YES	YES	YES	YES
boulder (25.6-40cm)	YES	YES			
boulder (>40cm)					
rubble (give size)					
woody debris					
other urban debris					
tree roots, fine					
moss					
filamentous algae					
other submerged veg.	YES	YES	YES	YES	YES
emergents					
Main substrate beneath					
bedrock		_			
cobble (6.5-15cm)					

YES

YES

YES

YES

YES

pebble (<6.5cm)

gravel (<1.6cm)

Width channel (m)

	İ		İ	Ì	İ	Í
sand (<2mm)						
clay						
silt						
Siltation						
none .	YES		YES	YES	YES	YES
low	11.5		11.5	11.5	11.5	1123
moderate						
high						
Refuges in bank none						
cobble/boulder						
tree roots, large						
vertical or undercut bank	YES		YES	YES	YES	YES
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	NONE		NONE	NONE	NONE	NONE
					2	1
Crayfish manually						'
Crayfish by trap				9		
Total crayfish caught				12		
		Notes (surve	ey conditions, pa	atches etc.):		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score					
in margins	2					
in mid channel	2					
in banks	2					
surveyability	2					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1						
method, note total(s) by other methods in notes if applicable)	12					

		CRAYFISH	HABITAT	SURV	EY FORM		Site		
Catchment	Wye		River	Off	eiriad		(no., name)	16	
Catchinent	vvye		Rivei	One	emau		name)	10	
Date (dd/mm/yy)	09/10/2014	Surveyors	DR LW				Grid ref.		21 44210
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1	_		_		Start and finish time	0900-1100
Photo ref. &									The Control of the Co
Location	In 1st 100m						100	10 碳	Seas of H
Site length (m)	400								
Width channel (m)	0.5	Descript. (channel features, landuse)	Access go Very few la	od wa	alking from r oulders/sto	oad. nes.			
	sample patch 1		sample patch 2		sample patch 3		sample patch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4
standard)	40.5		40 5		50 F		50 F		5.05
Extent (I x w patch) Channel (1 margins, 2	4x0.5		4x0.5		5x0.5		5x0.5		5x0.5
mid, 3 both, other specify)	3		3		3		3		3
Depth (metres)	0.2		0.2		0.2		0.2		0.2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		4		4
Refuges in channel		tick	all present i	n pato	ch, ring mair	n type	(s) searched	i	
cobble (6.5-15cm)	YES		YES		YES		YES		YES
cobble (15-25.6cm)	YES		YES		YES		YES		YES
boulder (25.6-40cm)									
boulder (>40cm)									
rubble (give size)									
woody debris									
other urban debris									
tree roots, fine									
moss									
filamentous algae									
other submerged veg.	YES		YES		YES		YES		YES
emergents Main substrate	YES		YES		YES		YES		YES
beneath									
bedrock									
									1

YES

YES

YES

cobble (6.5-15cm)
pebble (<6.5cm)
gravel (<1.6cm)
YES

YES

	I		1	I	1	i i
sand (<2mm)						
clay						
silt						
Siltation						
none .	YES		YES	YES	YES	YES
low	150		150	150	150	150
moderate						
high						
Refuges in bank none						
cobble/boulder						
tree roots, large						
vertical or undercut bank	YES		YES	YES	YES	YES
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	NONE		NONE	NONE	NONE	NONE
				1		
Crayfish manually						
Crayfish by trap				7		
Total crayfish caught				8		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surve	ey conditions, patc	hes etc.):		
in margins	2					
in mid channel	2					
in banks	2					
surveyability	2					
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	8					

10.9. Appendix I: White-clawed crayfish habitat survey forms for Sgithwen Brook, October 2014 and September 2015.

October 2014	and Se		per 20 YFISH H		SURVE	Y FORI	М			
							Site (no.,			
Catchment	Wye	Surveyor	River	Sgithwen			name) Grid ref.			
Date (dd/mm/yy)	01/09/2015	•	DR LW				(d/s end)	SO 1136 4	1147	
Weather, good 1, mod 2, poor				Water		Clarity, good 1, mod				
Photo ref. &	1 &	4	1	temp. oC	12	2, poor 3	1			
Location	Sg01									
Site length (m)	100									
		Descript. (channel features,	bridges an		ig, woodland ess good vi					
Width channel (m)	sample patc	landuse) h 1	footpath sample pat	rch 2	sample pat	rch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	4	1 .	& 4	1 8	k 4	1	& 4	1	& 4
Extent (I x w patch)	1x6		2x6	3	5x1		3x3		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		1		2		2	
Depth (metres)	0.3		0.2		0.1		0.3		0.3	
Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle)	5 tick all present	in natch mair	n type(s) searc		4		4		4	
Refuges in channel cobble (6.5-15cm)		пі ракіп, тап	YES	neu III feu	YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm) clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate high										
Refuges in bank none										
cobble/boulder	YES		YES		YES		YES		YES	
tree roots, large										
vertical or undercut bank										
dry stone wall									-	
other reinforced crayfish burrows										
Shading above	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)	0 10		10		10		5		5	
Bullhead present?	YES		YES						L	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3 3 3	Notes (surv	ey conditions,	patches etc.);	Salmonids p	resent thro	oughout			
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (all methods)	0									

		CRAY	/FISH H	ABITAT	SURVE	Y FORI	M			
Catchment	Wye		River	Sgithwen			Site (no., name)			2
		Surveyor		Sgittiweri			Grid ref.			4
Date (dd/mm/yy)	01/09/2015	Flow norm	DR LW			Clarity,	(d/s end)	SO 1102	4140	
Weather, good 1, mod 2, poor 3	1	, low 2, fall 3, rise 4	1	Water temp. oC		good 1, mod 2, poor 3	1			
Photo ref. &							. 62			
Location	Sg02						12			*
Site length (m)	100									
Marie de constant	()	Descript. channel eatures,	Mill.Pools b		ounds of Tre waterfalls.					
Width channel (m)	sample patch	anduse)	good sample pate	ch 2	sample pat	ch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 & 4	4	1 8	<u> </u>	1 8	. 4	1 6	& 4	1 8	& 4
Extent (I x w patch)	3x2		4x1		3x3		6x1		2x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		1		3		1		3	
Depth (metres)	0.1		0.3		0.2		0.3		0.1	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5	· -	2		5		2		5	
Refuges in channel	tick all present in	patch, mair		-						
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris			YES				YES			
other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents Main substrate beneath										
bedrock	VES		YES		YES		YES		YES	
cobble (6.5-15cm)	120		120		120		120		1120	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										_
moderate									1	
high			\/E0	-			\/E0			
Refuges in bank none	VEC		YES		VEC		YES		VEC	
cobble/boulder tree roots, large	YES			-	YES				YES	
				+					1	
vertical or undercut bank									1	
dry stone wall other reinforced										
crayfish burrows										
Shading above	HEAVY		MOD		HEAVY		MOD		HEAVY	
Crayfish/10 refuges, or per										
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	5		15		5		15		5	
Bullhead present?	YES	lotos /	N. 000 4141	notobes (1:)	YES Porolist fish	2002	<u> </u>		YES	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3		Notes (surv	ey conditions, p	oatches etc.):[Jerelict fish	pass				
abund.)	Score									
in margins	3									
in mid channel	3									
in banks	3									
surveyability	3									
Problems pollution 1, erosion										
2, (E if >33% affected), aliens 3.										
Total crayfish (all methods)	0									

		CRAY	/FISH H/	ABITAT	SURVE	Y FORI	И			
							Site (no.,			
Catchment	Wye	Surveyor	River	Sgithwen	1		name) Grid ref.			3
Date (dd/mm/yy)	01/09/2015	S	DR LW			01 ''	(d/s end)	SO 1054 4	135	
Weather, good 1, mod 2, poor 3	2	Flow norm 1, low 2, fall 3, rise 4	1	Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &	0.00								1	7 00
Site length (m)	Sg03	Descript.								
	_	(channel features,	Wooded/ur		•	ock and		1		
Width channel (m)	sample patc	landuse)	waterfalls. A		ep. sample pat	oh 2	sample par	tob 4	sample pa	tch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	. 4	1 8	k 4	1 8	k 4	1 8	§ 4	1 (& 4
Extent (I x w patch)	5x2		4x1		3x1		4x2		6x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		1		1		3		2	
Depth (metres)	0.4		0.2		0.2		0.2		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		4		5		4		5	
Refuges in channel		in patch, mair	type(s) search		, 5		4		5	
cobble (6.5-15cm)		,	YES		YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris									YES	
other urban debris										
tree roots, fine			YES						YES	
moss										
filamentous algae										
other submerged veg.										
emergents Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)	120		120		120		120		120	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate high										
Refuges in bank none	YES								YES	
cobble/boulder	5								,_5	
tree roots, large					YES					
vertical or undercut bank										
dry stone wall										
other reinforced										
crayfish burrows		_								
Shading above	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	5		10		5		10		5	
Bullhead present?	Ĭ		10		YES		YES			
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surv	ey conditions, p	patches etc.);		exhibit exce		t		
in margins	3									
in mid channel	3									
in banks surveyability	3									
our vey ability	3									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (all methods)	0									

		CRA	YFISH H	ABITAT	SURVE	Y FORI	И			
							Site (no.,			
Catchment	Wye	Surveyor	River	Sgithwen			name) Grid ref.			4
Date (dd/mm/yy)	02/09/2015		DR LW				(d/s end)	SO 1016 4	091	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	2	Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &				1000				MAN ST		
Location	Sg04									
Site length (m)	100	Descript.								
NAC ME LE LE LE LE LE LE LE LE LE LE LE LE LE	_	features,		wooded. Ri	•				10.00	
Width channel (m)	sample patc	landuse)	sample pat	Access goo	sample pat		sample pa	tch 4	sample pat	ch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	. 4	1 8	& 4	1 8	4	1 6	& 4	1 8	<u> </u>
Extent (I x w patch)	3x1		2x3	3	4x1		4x1		6x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3	3	1		1		3	
	0.2		0.3		0.2		0.2		0.4	
Depth (metres) Feature (1 marg. dwater, 2										
pool, 3 glide, 4 run, 5 riffle)	4		3		5		2		4	
Refuges in channel cobble (6.5-15cm)	tick all present	in patch, mair	YES years	hed in red	YES		YES		YES	
cobble (6.5-15cm)			YES		YES		YES		YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris	YES				YES				YES	
other urban debris tree roots, fine			YES		YES				YES	
moss			120		120				120	
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath bedrock	VES		YES		YES		YES		YES	
cobble (6.5-15cm)	ILO		TES		ILO		ILO		ILO	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate										
high										
Refuges in bank none cobble/boulder	YES		YES		YES		YES		YES	
tree roots, large					YES				YES	
vertical or undercut bank										
dry stone wall										
other reinforced										
crayfish burrows	LIE A A		HEALO:		LEAD!				HEV V	
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	0		C		0		0		0	
Search time (Mins)	5		VEC 5	5	5 VEC		10		15 VES	
Bullhead present? Evaluation crayfish		Notes (sur	YES ey conditions,	patches etc.)	YES				YES	
habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks	Score 3 3 3									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	3									
Total crayfish (all methods)	0									

	CRA	AYFISH H	ABITAT	SURVE	Y FORI				
Catchment	Wye	River	Sgithwen			Site (no., name)			5
Date (dd/mm/yy)	02/09/2015 s		- Granieri			Grid ref.	SO 0948 4	1084	J
Weather, good 1, mod 2, poor	Flow no 1, low 2, f	rm all	Water		Clarity, good 1, mod	(a/o ona)	30 0940 -	1004	
Photo ref. &	1 3, rise 4	2	temp. oC	12	2, poor 3	1			
Location	Sg05					The state of			-
Site length (m)	100 Descrip	t.							
Width channel (m)	features,	Woodlanda Access fro		river then gr	azing.				
Width channel (m)	sample patch 1	sample pate		ge. sample pat	tch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 & 4		<u> </u>		§ 4		& 4		§ 4
Details (if not standard)	1 & 4	10	x +	1.0	x 4	1,	X 4	1.0	x 4
Extent (I x w patch)	2x2	3x2		3x1		2x2		5x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3	-		1		2		2	
Depth (metres)	0.4	0.2		0.3		0.2		0.3	
Feature (1 marg. d'water, 2									
pool, 3 glide, 4 run, 5 riffle)	5	4		2		4		4	
Refuges in channel cobble (6.5-15cm)	tick all present in patch, n	YES	ned in red	YES		YES		YES	
cobble (0.5-15cm)		YES		YES		YES		YES	
boulder (25.6-40cm)		YES		YES		YES		YES	
boulder (>40cm)	YES	YES		YES		YES		YES	
rubble (give size)									
woody debris other urban debris									
tree roots, fine				-					
moss									
filamentous algae									
other submerged veg.									
emergents Main substrate beneath									
bedrock	YES	YES		YES		YES		YES	
cobble (6.5-15cm)	0								
pebble (<6.5cm)									
gravel (<1.6cm) sand (<2mm)									
sand (<2mm)									
silt									
Siltation none	YES	YES		YES		YES		YES	
low									
moderate high	 							-	
Refuges in bank none	YES					YES		YES	
cobble/boulder		YES		YES					
tree roots, large		YES						YES	
vertical or undercut bank									
dry stone wall other reinforced									
other reinforced crayfish burrows								<u> </u>	
Shading above	HEAVY	HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0	0		0		0		0	
Search time (Mins)	10	5		5		10		10	
Bullhead present?		YES		YES		YES			
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks	Score 3 3 3	urvey conditions, p	patches etc.):						
surveyability	3								
Problems pollution 1, erosion									
2, (E if >33% affected), aliens 3.									
Total crayfish (all methods)	0								

		CRAY	/FISH H	ABITAT	SURVE	Y FORI	И			
		_					Site (no.,			
Catchment	Wye	Surveyor	River	Sgithwen			name) Grid ref.			6
Date (dd/mm/yy)	02/09/2015	s	DR LW				(d/s end)	SO 0902 4	1048	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	2	Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &	_									
Location	Sg06								N. 1	
									(Tal)	
							- 9	14		
Site length (m)	100		1 8	. 4	1 8	<u> 4</u>				
		Descript.								
\\\/: although a bang and \(\text{ca} \)	_	features, landuse)	1 8	4	1 8			X STAN		THE PARTY
Width channel (m)	sample patc		sample pate		sample par		sample par	tch 4	sample par	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &		1 8		1 8			§ 4		§ 4
Details (if not standard)	1 &	4	1 6	. 4	10	<u>x 4</u>	10	<u>x 4</u>	10	x 4
Extent (I x w patch)	4x1		4x1		2x2		2x2		4x2	
Channel (1 margins, 2 mid, 3										
both, other specify)	1		1		2		2		3	
Depth (metres) Feature (1 marg. d'water, 2	0.2		0.2		0.4		0.3		0.2	
pool, 3 glide, 4 run, 5 riffle)	3		3		4		2		5	
Refuges in channel cobble (6.5-15cm)	tick all present YES	in patch,main	type(s) search	ed in red	YES		YES		YES	
cobble (0.3-13cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)										
rubble (give size) woody debris	YES		YES		YES		YES		YES	
other urban debris										
tree roots, fine										
moss filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm) sand (<2mm)										
clay										
Siltation none	YES		YES		YES		YES		YES	
low	TES		ILO		TES		IES		ILS	
moderate										
high Refuges in bank none										
cobble/boulder										
tree roots, large										
vertical or undercut bank	YES		YES		YES		YES		YES	
dry stone wall other reinforced										
crayfish burrows										
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	0		2		0		0		0	
Search time (Mins) Bullhead present?	10		YES		5		10		5	
Evaluation crayfish		Notes (surve	YES ey conditions, p	atches etc.):			I		ı	
habitat for whole site (0			•							
none, 1 pres., 2 freq., 3 abund.)	Score									
in margins	3									
in mid channel in banks	3									
surveyability	3									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
, , , , , , , , , , , , , , , , , , , ,										
Total crayfish (all methods)	2									
Total CrayIISH (all Illetilous)		<u> </u>								

		CRA	YFISH H	ABITAT	SURVE	Y FORI	VI			
Catchment	Wye		River	Sgithwen			Site (no., name)			-
		Surveyor		Sgiriwen			Grid ref.			<u> </u>
Date (dd/mm/yy)	02/09/2015	Flow norm	DR LW			Clarity,	(d/s end)	SO 0861 4	1025	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4		Water temp. oC	12	good 1, mod 2, poor 3	1			427
Photo ref. & Location	Sg07									2
Site length (m)	100	Descript.	Wooded ba	anks with si	urrounding (nrazing				
Width channel (m)	3	features, landuse)	Access god			grazing.				6-11
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample par	tch 3	sample pat	tch 4	sample pat	ch 5
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	4	1 8	k 4	1 8	<u> </u>	1 8	<u> 4</u>	1 8	k 4
Extent (I x w patch)	3x2		3x4		5x1		4x3		5x1	
Channel (1 margins, 2 mid, 3 both, other specify)	2		3		1		3		1	
Depth (metres)	0.2		0.3		0.2		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		4		3		5		4	
	tick all present	in patch, mai							- 4	
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)	YES				YES				YES	
rubble (give size)	VEC				YES					
woody debris other urban debris	TES				TES					
tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm) gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate										
high Refuges in bank none				-						
_	YES		YES		YES		YES		YES	
tree roots, large	. =-		YES		YES					
vertical or undercut bank			_							
dry stone wall										
other reinforced										
crayfish burrows										
	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	7		0		3		1		2	
Search time (Mins)	10		5		10		10		10	
Bullhead present?			YES		YES				YES	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	Score 3	Notes (surv	ey conditions, p	oatches etc.);	Disintegratir	ng spraint o	of mink or o	tter under i	oad bridge:	6
in mid channel	3									
in banks	3									
surveyability	3									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
-,										

		CRAY	/FISH H/	ABITAT	SURVE	Y FORI	И			
Catchment	Wy		Divor	Caithuan			Site (no.,			
	Wye	Surveyor	River	Sgithwen			name) Grid ref.			
Date (dd/mm/yy)	03/09/2015	Flow norm	DR LW			Clarity,	(d/s end)	SO 0823	3995	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	2	Water temp. oC	 	good 1, mod 2, poor 3	1			
Photo ref. & Location	Sg08						经州外	建	W. The	
Site length (m)	100									
Width channel (m)	4	Descript. (channel features, landuse)	Grazing wit		ooded banks	s. Access				-
•	sample patc	h 1	sample pate		sample pate	ch 3	sample par	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	4	1 8	k 4	1 &	. 4	1 8	<u> </u>	1 6	§ 4
Extent (I x w patch)	2x2		2x4		3x2		5x1		2x2	
Channel (1 margins, 2 mid, 3 poth, other specify)	3		3		3 3 3		1		2 2 2	
Depth (metres)	0.2		0.2		0.2		0.2		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		5		4		3		3	
Refuges in channel	tick all present	in patch,main			4		J			
cobble (6.5-15cm)			YES		YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm) rubble (give size)	IES		YES		YES		YES		YES	
woody debris	YES						YES		YES	
other urban debris										
tree roots, fine	YES						YES			
moss										
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm) clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low		-								
moderate									1	
high									1	
Refuges in bank none cobble/boulder	YES		YES		YES		YES			
tree roots, large							YES		YES	
vertical or undercut bank							_		1	
dry stone wall									1	
other reinforced										
crayfish burrows									ļ	
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	3		2		0		2		0	
Search time (Mins)	5		10		5		5		5	
Bullhead present?	YES		YES		آـــــــــــــــــــــــــــــــــــــ				YES	
Evaluation crayfish nabitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) n margins n mid channel	Score 3	Notes (surv	ey conditions, p	atches etc.);	Mink spriant	containing	g crayfish re	emains pre	esent throug	hout.
n banks surveyability	3									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (all methods)	7									

Catchment	Wye				Site (no., name)	9					
							ŕ				
Date (dd/mm/yy)	16/10/2014	Surveyors	DR LW				Grid ref.	SO 08312 4	0030		
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	1500-1700		
Photo ref. &							- WW///	1 1			
Location	Immediately dow	nstream of 1st 10	0m					The street of th			
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Land use - woodland, grazing. Access - roadbridge at downstream end. Series of bedrock waterfalls, pools and stoney areas.								
()	sample patch 1		sample pato		sample patc	h 3	sample patch	4	sample patch 5		
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not	1 &	4	1 & 4		1 & 4		1 &		1 & 4		
standard) Extent (I x w											
patch)	3x2		6x1		6x1		6x1		6x1		
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3		
Depth (metres)	0.2		0.2		0.3		0.2		0.3		
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		4		4		
Refuges in channel	tick all present in	patch, main type	(s) searched i	n red							
cobble (6.5-15cm)	YES	, , , , , , , , , , , , , , , , , , ,	YES		YES		YES		YES		
cobble (15- 25.6cm)	YES		YES		YES		YES		YES		
boulder (25.6- 40cm)	YES		YES		YES		YES		YES		
boulder (>40cm)	YES		YES		YES		YES		YES		
rubble (give size)											
woody debris	YES		YES		YES		YES		YES		
other urban debris											
tree roots, fine	YES								YES		
moss											
filamentous algae other submerged veg.											
emergents Main substrate beneath											
bedrock											

achble (C.F. 1Fam)	YES		YES	YES	YES	YES
cobble (6.5-15cm)	YES		YES	YES	YES	YES
pebble (<6.5cm)						+
gravel (<1.6cm)						
sand (<2mm)						
clay						
silt						
Siltation none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none			YES		YES	
cobble/boulder						
tree roots, large	YES			YES		YES
vertical or undercut bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	LIGHT		LIGHT	LIGHT	LIGHT	LIGHT
Crayfish						
manually	0		0	0	0	3
manually Crayfish by trap	0		0	0 4	0	3
manually Crayfish by trap Total crayfish	0		0	4	0	3
manually Crayfish by trap Total crayfish caught	0	Notes (survey		4 7		3
manually Crayfish by trap Total crayfish caught Evaluation	0	Notes (survey	0 conditions, patches	4 7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0	0	Notes (survey		4 7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2		Notes (survey		4 7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (survey		4 7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	Score 3	Notes (survey		4 7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel	Score 3	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	Score 3 3 1	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems	Score 3 3 1	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if	Score 3 3 1	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected),	Score 3 3 1	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	Score 3 3 1	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected),	Score 3 3 1	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note total(s) by other	Score 3 3 1	Notes (survey		7		3
manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note	Score 3 3 1	Notes (survey		7		3

			CRATFISH HABITAT SURVET FURI							
Catchment	Wye		River	Sgit	hwen		Site (no., name)		10	
Date (dd/mm/yy)	16/10/2014	Surveyors	DR LW				Grid ref.	SO 07659 3	9571	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	1300-1500	
Photo ref. &										
Location	400m mark							3 7 11 1		
Site length (m)	100	Descript. (channel features,	Land use - agricultural. Easy							
Width channel (m)	3	landuse)	Land use - agricultural. Easy access via road bridge							
	sample patch 1		sample patc	h 2	sample pa	tch 3	sample patch 4		sample patch 5	
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4	
Details (if not										
standard) Extent (I x w patch)	5x1		7x2		7x2		5x2		7x1	
Channel (1 margins, 2 mid, 3 both, other										
specify)	1		1		2		3		3	
Depth (metres)	0.4		0.2		0.3		0.3		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		5		5		4	
Refuges in channel	tick all present in	patch.main type	e(s) searched i	n red						
cobble (6.5-15cm)	YES	<u>, ,</u>	YES		YES		YES		YES	
cobble (15- 25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6- 40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris	YES		YES		YES		YES		YES	
other urban debris	\/=0		\/=0		\/=0					
tree roots, fine	YES		YES		YES					
moss filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm)	YES		YES		YES		YES		YES	

	d .	i	İ	1	Î.	1
pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)						
clay						
silt						
Siltation none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank none						
cobble/boulder	YES		YES	YES	YES	YES
tree roots, large	YES		YES	YES	YES	YES
vertical or			\/=0		\/T0	
undercut bank			YES		YES	
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		HEAVY	MOD	HEAVY	HEAVY
Crayfish manually	0		0	1	0	0
Crayfish by trap				3		
Total crayfish caught				4		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (survey o	conditions, patches	etc.):Excellent hab	itat throughout	
crayfish habitat for whole site (0 none, 1 pres., 2	Score 3	Notes (survey o	conditions, patches	etc.):Excellent hab	itat throughout	
crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)		Notes (survey o	conditions, patches	etc.):Excellent hab	itat throughout	
crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	3	Notes (survey o	conditions, patches	etc.):Excellent hab	itat throughout	
crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	3	Notes (survey o	conditions, patches	etc.):Excellent hab	itat throughout	
crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks	3 3 3	Notes (survey o	conditions, patches	etc.):Excellent hab	itat throughout	

Catchment	Wye		River	Sgit	hwen	Site (no., name)		11	
Date (dd/mm/yy)	16/10/2014	Surveyors	DR LW			Grid ref.	SO 06970 3	9107	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1				Start and finish time	1100-1300	
Photo ref. &						No.			
Location	In 1st 100m						小小	in the second	
Site length (m)	100	Descript. (channel features,	Land use - v roadbridge ii		and. Access from				
Width channel (m)	sample patch 1	landuse)	sample patc		sample patch 3	sample patch	1	sample patch 5	
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4	11 2	1 & 4	sample patch 4		sample patch 5	
Details (if not standard)		_ ·	1 & 4				_		
Extent (I x w patch)	2x2		4x2		3x2	8x1		10x1	
Channel (1 margins, 2 mid, 3 both, other								3	
specify)	1		1		2	2			
Depth (metres) Feature (1 marg.	0.2		0.2		0.2	0.3		0.2	
d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		4		4	5		5	
Refuges in channel	tick all present in	patch,main type	(s) searched i	n red					
cobble (6.5-15cm)	YES	, ,,	YES		YES	YES		YES	
cobble (15- 25.6cm)	YES		YES		YES	YES		YES	
boulder (25.6- 40cm)	YES		YES		YES	YES		YES	
boulder (>40cm)	YES		YES		YES	YES		YES	
rubble (give size)									
woody debris	YES		YES		YES	YES		YES	
other urban debris									
tree roots, fine moss									
filamentous algae									
other submerged veg.									
emergents Main substrate beneath									
bedrock									
cobble (6.5-15cm)	YES		YES		YES	YES		YES	

pebble (<6.5cm) gravel (<1.6cm) sand (<2mm)								
- '								
sand (<2mm)								
` '								
clay								
silt								
Siltation								
none								
low	YES		YES	YES		YES	YES	
moderate								
high								
Refuges in bank none	YES		YES					
cobble/boulder				YES		YES	YES	
tree roots, large						YES	YES	
vertical or								
undercut bank				YES		YES		
dry stone wall								
other reinforced								
crayfish burrows								
Shading above	HEAVY		HEAVY	HEAVY		HEAVY	HEAVY	
Crayfish manually			1			1	1	
Crayfish by trap				5				
Total crayfish								
caught		Nata de la composición	PC	8	In a la 20 a	-1		
Evaluation		Notes (survey o	conditions, patches	etc.):Excellent	nabita	at		
crayfish habitat for whole site (0								
none, 1 pres., 2								
freq., 3 abund.)	Score							
in margins	3							
in mid channel	3							
in banks	2							
surveyability	3							
Problems	-							
aliens 3.								
Total crayfish (by								
1 method, note								
total(s) by other methods in notes								
if applicable)	8							
surveyability Problems pollution 1, erosion 2, (E if >33% affected),								

CRAYFISH HABITAT SURVEY FORM										
Catchment	Wye		River	Sgitl	hwen		Site (no., name)		12	
Date (dd/mm/yy)	16/10/2014	Surveyors	DR LW				Grid ref.	SO 06541 3	8597	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	0900-1100	
Photo ref. &							100			
Location	Mid point of site							C CAN	とという	THE RES
Site length (m)	100	Descript. (channel features,	Land use - woodland and village.							
Width channel (m)	3	landuse)	Land use - woodland and village. Access via roadbridge.					10.55	100	
Survey method,	sample patch 1		sample patch	า 2	sample pat	ch 3	sample patch 4		sample patch	5
std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4	ı
Details (if not standard)	1.0	-	144		144		1 4	7	141	
Extent (I x w patch)	3x2		4x2		6x2		5x1		3x1	
Channel (1 margins, 2 mid, 3 both, other specify)	2		1		3		1		3	
Depth (metres)	0.2		0.2		0.2		0.2		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4				4	
Refuges in channel	tiols all propert in	notch main tuno	(a) accrebed in							
cobble (6.5-15cm)	tick all present in YES	patch,main type	YES	rrea	YES		YES		YES	
cobble (15- 25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6- 40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris	YES		YES		YES		YES		YES	
other urban debris	\/F0		VEO		VEO		VE0		VE0.	
tree roots, fine	YES		YES		YES		YES		YES	
moss filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath										
bedrock	YES		YES		YES		YES		YES	
cobble (6.5-15cm)										

	•		1	1	ı	i
pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)						
clay						
silt						
Siltation						
none	YES		YES	YES	YES	YES
low						
moderate						
high						
Refuges in bank none						
cobble/boulder	YES		YES			
tree roots, large	YES		YES	YES	YES	YES
vertical or undercut bank	YES					
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	HEAVY	HEAVY	HEAVY
Crayfish						
manually	0		0	0	0	0
Crayfish by trap				2		
Total crayfish caught				2		
Evaluation		Notes (survey	conditions, patches	etc.):		
crayfish habitat						
for whole site (0 none, 1 pres., 2						
freq., 3 abund.)	Score					
in margins	3					
in mid channel	3					
in banks	1					
surveyability	3					
Problems						
pollution 1,						
erosion 2, (E if >33% affected),						
aliens 3.						
Total crayfish (by						
1 method, note total(s) by other						
(-, -, -, -, -, -, -, -, -, -, -, -, -, -		1				
methods in notes if applicable)	2					

CRAYFISH HABITAT SURVEY FORM										
Catahmant	Misso		Divor	Caith			Site (no., name)		42	
Catchment	Wye		River	Sgith	wen		name)		13	
Date (dd/mm/yy)	15/10/2014	Surveyors	DR LW				Grid ref.	SO 06010 3	8645	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	1500-1700	
Photo ref. &							110			
Location	Towards upstrea	ım end of site						- A		100
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Land use - g access. Easy	razing,	total stock s across fiel	d.				
	sample patch 1	,	sample patch		sample pa		sample patch	4	sample pato	:h 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 8		1 & 4	
Details (if not standard)										
Extent (I x w patch)	6x1		6x1		6x1		6x1		6x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	
Depth (metres)	0.2		0.2		0.2		0.2		0.2	<u>!</u>
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		4		4	
Refuges in channel	tials all assessment in		-(-)bd	:						
cobble (6.5-15cm)	tick all present in	i patch, main typ	YES	in rea	YES		YES		YES	
cobble (15- 25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6- 40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris										
other urban debris										
tree roots, fine										
moss						1				
filamentous algae					ı		1			
other submerged veg.										
emergents										
Main substrate beneath			T		Т		T		T	
bedrock										
cobble (6.5-15cm)										

	ı		I	1		•	1
pebble (<6.5cm)					•		
gravel (<1.6cm)	YES		YES	YES		YES	YES
sand (<2mm)							
clay							
silt							
Siltation							
none	YES		YES	YES		YES	YES
low							
moderate							
high							
Refuges in bank none							
cobble/boulder	YES		YES	YES		YES	YES
tree roots, large							
vertical or	VEC		YES	VEC		VEC	VEC
undercut bank	YES		YES	YES		YES	YES
dry stone wall							
other reinforced							
crayfish burrows							
Shading above	NONE		NONE	NONE		NONE	NONE
Crayfish manually							1
Crayfish by trap				3			
Total crayfish				4			
caught		Notes (survey	conditions, patches	etc.):Site is m	ostly a	straight channel except for t	he most upstream end
Evaluation crayfish habitat		where there is	more diversity of hal	bitat	oo, o	onangin onaninoi onoopi ioi i	no most aponoam ona
for whole site (0							
none, 1 pres., 2	0						
freq., 3 abund.)	Score						
in margins	3						
in mid channel	3						
in banks	2						
surveyability Problems	1						
pollution 1,							
erosion 2, (E if							
>33% affected),							
aliens 3. Total crayfish (by							
1 method, note							
total(s) by other							
methods in notes if applicable)	4						
п аррисавіе)	1 4						

	CRAYFISH HABITAT SURVEY FORM									
Catchment	Wye		River	Sgitt	nwen		Site (no., name)		14	
Date (dd/mm/yy)	15/10/2014	Surveyors	DR LW				Grid ref.	SO 05720 38	8718	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	1300-1500	
Photo ref. &									100	Mark Control
Location	At 100 m between	n patches 1 and 2	2					AL BEST		
Site length (m) Width channel (m)	1.5 - 2.5	Descript. (channel features, landuse)	Land use - farmyard and grazing. Irish bridge between Patches 1 & 2. Good habitat throughout. Easy access through farmyard				AND THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON.			
Width Chariner (III)	sample patch 1	iailuuse)	access through farmyard sample patch 2 sample pa			:h 3	sample patch	4	sample patc	h 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5		sample patch 1		1 & 4			1 8			
Details (if not standard)	1 & 4				1 & 4					
Extent (I x w patch)	6x4		8x2		5x1		5x1		5x1	
Channel (1 margins, 2 mid, 3 both, other	UNT		8X2		OX1		OA1		- OXI	
specify)	3		2		3		3	3		
Depth (metres)	0.3		0.3		0.3		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		3		4		4		4	
Refuges in	tick all present in	notab main tuna	(a) accrebed :	ים יים	•		4		•	
channel cobble (6.5-15cm)	tick all present in YES	paten, main type	YES	n rea	YES		YES		YES	
cobble (15- 25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-			YES							
40cm) boulder (>40cm)	YES YES		YES		YES YES		YES YES		YES YES	
rubble (give size)	120		120		120		120		120	
woody debris							YES			
other urban debris										
tree roots, fine										
moss										
filamentous algae other submerged veg.										
emergents Main substrate										
beneath										
bedrock										

cobble (6.5-15cm)

	İ	i	1	I	1	1	
pebble (<6.5cm)							
gravel (<1.6cm)				YES	YES	YES	
sand (<2mm)							
clay							
silt	YES		YES				
Siltation	. = 9						
none				YES	YES	YES	
low							
moderate	YES		YES				
high							
Refuges in bank	VE0		\/F0				
none	YES		YES YES				
cobble/boulder							
tree roots, large			YES				
vertical or undercut bank			YES		YES	YES	
dry stone wall			120		120	120	
other reinforced							
						YES	
crayfish burrows	NONE	NONE		NONE	MOD	MOD	
Shading above	NONE		NONE	NONE	MOD	MOD	
Crayfish manually	6		7	2	1	1	
Crayfish by trap				37			
Total crayfish				F 4			
caught		Notes (survey o	onditions natches	54 etc):Good habitat	throughout. Six crayfish seen	walking across riverhed	
Evaluation crayfish habitat		from Irish bridge	e (in photo). Also re	ports of largest cra	ayfish ever seen in this area b	y local farmers.	
for whole site (0							
none, 1 pres., 2							
freq., 3 abund.)	Score						
in margins	3						
in margins in mid channel							
j	3						
in mid channel in banks surveyability	3						
in mid channel in banks surveyability Problems	3 3 3						
in mid channel in banks surveyability Problems pollution 1,	3 3 3						
in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected),	3 3 3						
in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	3 3 3						
in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by	3 3 3						
in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	3 3 3						
in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note	3 3 3						

CRAYFISH HABITAT SURVEY FORM												
Catchment	Wye	River Sgithwen			Site (no., name)	15						
Date (dd/mm/yy)	15/10/2014	Surveyors	DR LW			Grid ref.	SO 05116 38682					
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	1100-1300			
Photo ref. &												
Site length (m)	100 100 100 100 100 100 100 100 100 100											
Width channel (m)	1.5 - 3	Descript. (channel features, landuse)	Land use - woodland and grazing. Easy access across field. Good habitat throughout.									
	sample patch 1	sample patch 1		sample patch 2 samp		ch 3	sample patch 4		sample patch 5			
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	1 & 4		1	1 & 4		1 &	4 16		4		
Details (if not standard) Extent (I x w												
patch)	3x2		3x2		4x3		5x1		5x1			
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		1		3		3			
Depth (metres) Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	0.2 5		0.2		0.3		0.2	0.2				
Refuges in	tials all present in		-\	:								
channel cobble (6.5-15cm)	tick all present in YES	YES YES		YES		YES						
cobble (15- 25.6cm)	YES		YES		YES		YES		YES			
boulder (25.6- 40cm)	YES	YES			YES		YES		YES			
boulder (>40cm)	YES		YES		YES		YES		YES			
rubble (give size)												
woody debris	YES		YES									
other urban debris tree roots, fine	VEC		YES									
moss	YES		TLS									
filamentous algae												
other submerged veg.												
emergents												
Main substrate beneath			T		1		Т					
bedrock												

cobble (6.5-15cm)

	ı		1	1	1		I	ı
pebble (<6.5cm)				1				
gravel (<1.6cm)	YES		YES	YES	YES		YES	
sand (<2mm)								
clay								
silt								
Siltation								
none								
low	YES		YES	YES	YES		YES	
moderate								
high								
Refuges in bank								
none				1				
cobble/boulder	YES		YES	YES	YES		YES	
tree roots, large	YES		YES	T				
vertical or undercut bank	YES		YES		YES		YES	
dry stone wall	120		120		120		120	
other reinforced								
crayfish burrows								
Shading above	LOW		MOD	HEAVY	HEAV	<u> </u>	LOW	
Crayfish manually	3		2			2		
Crayfish by trap				12	I	_		
Total crayfish				12				
caught				19				
Evaluation		Notes (survey of	conditions, patches	etc.):				
crayfish habitat								
for whole site (0 none, 1 pres., 2								
freq., 3 abund.)	Score							
in margins	3							
in mid channel	3							
in banks	2							
surveyability	3							
Problems								
pollution 1,								
erosion 2, (E if								
>33% affected), aliens 3.								
Total crayfish (by								
1 method, note								
total(s) by other	1							
mothodo in notos								
methods in notes if applicable)	19							

		C	RAYFISH H	ABITA	T SURVEY	FORM	<u> </u>			
Catchment	Wye		River	Sgith	wen		Site (no., name)		16	
Catchinent	vvye		Trivei	Ogitii	Well		name)		10	
Date (dd/mm/yy)	15/10/2014	Surveyors	DR LW				Grid ref.	SO 04620 3	9077	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					Start and finish time	0900-1100	
Photo ref. &										
Location	Pond							MEGILLA	斯羅	
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Land use - store. Sma adjacent po	II strea	y plus fore: m channel v	stry with				
	sample patch 1		sample pat		sample pa	atch 3	sample patch	4	sample patc	h 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &		1 8	
Details (if not standard) Extent (I x w										
patch)	8x1		8x1		8x1		8x1		8x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	
Depth (metres)	0.2		0.2		0.2		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		4		4		3		3	
Refuges in channel	Calcallana and Sa		->							
cobble (6.5-15cm)	tick all present in p	patcn, main type(s	YES	n rea	YES		YES		YES	
cobble (15- 25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6- 40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris	YES						YES			
other urban debris										
tree roots, fine										
moss						I				
filamentous algae other submerged veg.										
emergents										
Main substrate beneath							CONCRETE			
bedrock										
cobble (6.5-15cm)										

pebble (<6.5cm)	YES		YES	YES		YES
gravel (<1.6cm)						
sand (<2mm)						
clay						
silt						
Siltation						
none	YES		YES	YES	YES	YES
low						
moderate						
high						
Refuges in bank none	YES				YES	YES
cobble/boulder						
tree roots, large						
vertical or undercut bank			YES	YES		
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		MOD	MOD	MOD	MOD
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation		Notes (survey o	conditions, patches	s etc.):Patch 4 -	river piped under track, o	contains boulders and cobbles.
crayfish habitat		Photos of river	upstream and dow	vnstream of pipe	a section.	
for whole site (0 none, 1 pres., 2						A STATE OF THE STA
freq., 3 abund.)	Score	200 M	1	10000000000000000000000000000000000000		AND THE RESERVE OF THE PERSON
in margins	3			(理學)	The state of the s	
in mid channel	3			AL TEXT		
in banks	1			5 12 2 2		
surveyability	3		MAN	1/2		
Problems		BANK TO THE REAL PROPERTY.	A STATE OF THE STA	The straigh		
pollution 1,			THE PARTY	The same of the sa		
erosion 2, (E if			Charles of	NA MATERIA		
>33% affected), aliens 3.		A STATE OF THE STA				The second second
Total crayfish (by				AND THE PERSON NAMED IN		
1 method, note						
total(s) by other						
methods in notes						
if applicable)	0					

10.10. Appendix J: White-clawed crayfish habitat survey forms for Dulas Brook (Builth Road) September 2015.

Road) Septem	ibei 20		FISH H	ABITAT	SURVE	Y FORI	M			
							Site (no.,			
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith R	oad)	name) Grid ref.			1
Date (dd/mm/yy)	29/09/2015		DR LW				(d/s end)	SO 0210 5	5300	
Marthan 10		low norm		Water		Clarity,				
Weather, good 1, mod 2, poor 3		, low 2, fall 3, rise 4	2	temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &									200	
Location	Dulas01							Y D		
Site length (m)	500								1 1 / 101	
	I.	Descript. channel eatures,	Grazing an	d urban. Ac	ljacent sew	age works				
Width channel (m)		anduse)	Access god			1-1-0				atala 5
Survey method, std 1, quad	sample patch	1	sample pate	cn 2	sample pa	tcn 3	sample pa	tcn 4	sample p	atcn 5
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	4	1 8	<u> </u>	1 8	§ 4	1 8	§ 4	1	& 4
,	F 4				4.0		F 4			
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	5x1 2		5x1 2		4x2 3		5x1		5x	3
Depth (metres)	0.2		0.2	<u> </u>	0.3		0.2		0.3	3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5		4		5			4
Refuges in channel	tick all present in	patch, mair			4		5		· '	+
cobble (6.5-15cm)		,,	YES		YES		YES		YES	
cobble (15-25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size) woody debris										
other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)	\/F0		VE0		VE0		VE0		YES	
gravel (<1.6cm) sand (<2mm)	YES		YES		YES		YES			
clay										
silt										
Siltation none	YES				YES		YES			
low			YES						YES	
moderate high										
Refuges in bank none										
cobble/boulder	YES		YES		YES		YES		YES	
tree roots, large					YES				YES	
vertical or undercut bank										
dry stone wall										
other reinforced crayfish burrows										
Shading above	MOD		HEAVY		MOD		HEAVY		MOD	
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)	5		5		10		10		1:	5
Bullhead present?	YES				YES		10		YES	J
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion	Score 3 3 3 3 3 3	Notes (surve	ey conditions, p	patches etc.);						
2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

		CRAY	/FISH H/	ABITAT	SURVE	Y FORI	М			
Catchment	Wye		River	Dulas Pro	ak (Buith D	aad\	Site (no.,			2
		Surveyor		Dulas Bro	ok (Buith R	oad)	name) Grid ref.			
Date (dd/mm/yy)	29/08/2015	Flow norm	DR LW			Clarity,	(d/s end)	SO 0234 5	335	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	2	Water temp. oC	12	good 1, mod	1			
Photo ref. &	D 1 00					•	1			
Location	Dulas02								大道	
								4.47		A Committee of
Site length (m)	100									
		Descript.	Urban, foot	path, footbr	idge, public	access,			VE A	
Width abancal (m)	_	features,	dog walking			anks,				
Width channel (m)	sample patc	landuse) h 1	grazing. Go sample pate		sample pa	tch 3	sample pa	tch 4	sample par	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &		1.8			§ 4		<u> </u>		§ 4
Details (if not standard)										
Extent (I x w patch)	5x1		5x1		4x3		4x1		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	1		1		3		1		3	
Depth (metres)	0.2		0.3		0.4		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		2		3		4		4	
Refuges in channel	tick all present	in patch, mair	type(s) search							
cobble (6.5-15cm) cobble (15-25.6cm)			YES YES		YES YES		YES YES		YES YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size) woody debris	YES				YES				YES	
other urban debris	YES		YES						YES	
tree roots, fine moss										
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock cobble (6.5-15cm)										
pebble (<6.5cm)					YES					
gravel (<1.6cm) sand (<2mm)	YES		YES				YES		YES	
sanu (<2mm)										
Siltation	YES		YES				YES		YES	
Siltation none low	YES		YES		YES		YES		YES	
moderate										
high Refuges in bank none										
cobble/boulder	\/FC		\/FC				\/FC		\/FC	
tree roots, large			YES				YES		YES	
vertical or undercut bank dry stone wall										
other reinforced										
crayfish burrows Shading above	HEAVY		HEAVY		HEAVY		MOD		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	15		10		5		5		5	
Bullhead present? Evaluation crayfish		Notes (sup	ey conditions, p	vatches etc.):I	YES	ore observ	YES	v at come n	ointe	
habitat for whole site (0		INOIG2 (SILM	oy conunions, p	ratories etc.):[_arge DOUIC	ici a udscul	e water 110V	vaιsume β	onia.	
none, 1 pres., 2 freq., 3 abund.)	Score									
in margins	3									
in mid channel in banks	3									
surveyability	3									
Problems pollution 1, erosion										
2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method, note total(s) by other methods in										
notes if applicable)	0									

		CRA	/FISH H	ABITAT	SURVE	Y FORI	VI			
Catalanaat	10/110		Diver	Dules Dra	alı (Dı itta D		Site (no.,			2
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith R	oad)	name) Grid ref.			3
Date (dd/mm/yy)	30/08/2015	S Flow norm	DR LW			Clarity,	(d/s end)	SO 0270 5	356	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	1	Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &	Dulagon							4	C. Proper	
Site length (m)	Dulas03	Descript. (channel features,	Wooded, b	-		Good				
Width channel (m)		landuse)	access.	ah 0	samuela na	tala 2	accordence	tale 4	agains a st	h E
Survey method, std 1, quad	sample pato		sample pate		sample pa		sample pa		sample pate	
2, net/kick 3, trap 4, view 5	1 8	. 4	1 8	<u> </u>	1 8	<u> </u>	1 8	<u> </u>	1 &	4
Details (if not standard)	4:0		4.4		0.0		0.0		4:0	
Extent (I x w patch) Channel (1 margins, 2 mid, 3	1x3		4x1		3x2		2x2		4x2	
both, other specify)	3		1		1		2		2	
Depth (metres) Feature (1 marg. d'water, 2	0.2		0.2	!	0.2		0.2		0.2	
pool, 3 glide, 4 run, 5 riffle)	5		5		4		4		4	
Refuges in channel	tick all present	in patch, mai	1	hed in red	VEO		VEC		VEC	
cobble (6.5-15cm) cobble (15-25.6cm)			YES YES		YES YES		YES YES		YES YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm) pebble (<6.5cm)										
gravel (<1.6cm)	YES		YES		YES		YES		YES	
sand (<2mm)	. 20								.20	
clay										
Siltation none	YES		YES		YES		YES		YES	
low	ILO		11.5		1123		1123		11.0	
moderate										
high				-	<u> </u>					
Refuges in bank none cobble/boulder	YES		YES		YES		YES		YES	
tree roots, large			YES		YES					
vertical or undercut bank	YES									
dry stone wall										
other reinforced crayfish burrows					-					
Shading above	MOD		LIGHT		LIGHT		NONE		NONE	
Crayfish/10 refuges, or per unit (depending on method)										
Search time (Mins)	5		5		15		5		5	
Bullhead present?	YES		YES				YES		YES	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3 3	Notes (surv	ey conditions, p	patches etc.);						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0		ov ulz							

		CRA	/FISH H	АВІТАТ	SURVE	Y FORI	И			
Catchment	Wye		River	Dulac Pro	ok (Buith R	ood)	Site (no., name)			4
		Surveyor		Dulas BIO	OK (Builli N	oau)	Grid ref.	00 0000 5	2004	
Date (dd/mm/yy)	30/08/2015	Flow norm	DR LW			Clarity,	(d/s end)	SO 0293 5	391	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	1	Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &	Dulas04							A .		(1)
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Urban, woo Access by		•					
	sample patc		sample pate		sample pa		sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &		1.8			§ 4		<u> </u>		& 4
Details (if not standard)	10		- 10	x 	1	, ,	1	A T		<u>u + </u>
Extent (I x w patch)	2x2		3x1		3x2		4x1		6x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		1		2		1		1	
Depth (metres)	0.4		0.2		0.3		0.2		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		3		4		3		4	
Refuges in channel	tick all present	in patch,main			4				4	
cobble (6.5-15cm)			YES		YES		YES		YES	
cobble (15-25.6cm) boulder (25.6-40cm)	YES YES		YES YES		YES YES		YES YES		YES YES	
boulder (>40cm)			YES		YES		YES		YES	
rubble (give size)										
woody debris										
other urban debris tree roots, fine							YES		YES	
moss							120			
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm) gravel (<1.6cm)	YES		YES		YES		YES		YES	
sand (<2mm)	120		120		120		120		120	
clay										
Siltation none							VEC		VEC	
	YES		YES		YES		YES		YES	
moderate										
high										
Refuges in bank none cobble/boulder	VES		YES		YES		YES		YES	
tree roots, large	ILO		I LO		ILO		YES		YES	
vertical or undercut bank										
dry stone wall		· · · · · ·								
other reinforced crayfish burrows				-						-
Shading above	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	10		10		10		10		10	
Bullhead present?	. 0				.0		. •		YES	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	Score 3 3 3 3 3 3	Notes (surv	ey conditions, p	atches etc.);						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

		CRAY	/FISH H	АВІТАТ	SURVE	Y FORI	М			
Catchment	Wye		River	Dulas Pro	ok (Buith R	ood)	Site (no., name)			5
		Surveyor		Dulas Broo	JK (DUILIT K	uau)	Grid ref.	00 0014 5	100	5
Date (dd/mm/yy)		Flow norm	DR LW	144		Clarity,	(u/s enu)	SO 0314 5	439	
Weather, good 1, mod 2, poor 3		1, low 2, fall 3, rise 4	1	Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &	Dula e05								ii/	A STATE OF THE STA
Location	Dulas05							K. T.		
									-	
Site length (m)	100						Y		the state	
		Descript.	Woodland,	arazina Rı	ıffer zone e	vcent at			1/2	Smiles.
Width channel (m)	4	features, landuse)	some stock	access poi	int. Good a	ccess	en			
Survey method, std 1, quad	sample patcl	า 1	sample pate	ch 2	sample pa	tch 3	sample pa	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5	1 &	4	1.8	<u> 4</u>	1 6	<u> </u>	1 (& 4	1	& 4
Details (if not standard) Extent (I x w patch)	2x2		2x3	,	6x1		3x2		3x2	
Channel (1 margins, 2 mid, 3										
both, other specify) Depth (metres)	0.2		0.2		0.2		0.2		0.2	
Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	tick all present i	in patch, mair	type(s) search		4		4		5	
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm) boulder (25.6-40cm)	YES YES		YES YES		YES YES		YES YES		YES YES	
boulder (>40cm)			YES		YES		YES		YES	
rubble (give size) woody debris	VES									
other urban debris	TES									
tree roots, fine					YES					
moss filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm) pebble (<6.5cm)										
gravel (<1.6cm)	YES		YES		YES		YES		YES	
sand (<2mm) clay										
Siltation	VEC		VEC		VEC		VEC		VEC	
Siltation none low	YES		YES		YES		YES		YES	
moderate										
Refuges in bank none										
cobble/boulder			YES		YES		YES		YES	
tree roots, large vertical or undercut bank	150		YES		YES				YES	
dry stone wall										
other reinforced crayfish burrows										
Shading above	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		С	
Search time (Mins)	5		YES 5		10		5		5 VEC	
Bullhead present? Evaluation crayfish	YES	Notes (surv	ey conditions, p	patches etc.);			YES		YES	
habitat for whole site (0 none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins in mid channel	3									
in banks	3									
surveyability	3									
Problems pollution 1, erosion										
 (E if >33% affected), aliens 3. Total crayfish (by 1 method, 										
note total(s) by other methods in notes if applicable)	0									

		CRAY	FISH H	ABITAT	SURVE	Y FORI	М			
Catchment	Wye		River	Dulas Pro	ok (Buith R	oad)	Site (no., name)			6
Date (dd/mm/yy)		urveyor	DR LW	Duids DIO	JK (DUILIT K	uau)	Grid ref.	SO 0353 5	:500	0
Weather, good 1, mod 2, poor	Fl ₁ ,	OW norm low 2, fall	DR LW	Water		Clarity, good 1, mod	(,	SO 0353 5	500	
Photo ref. &	1 3,	rise 4	1	temp. oC	12	2, poor 3	1		77 2 4 48	- 20 FB - 40
Location	Dulas06									
Site length (m)	100 Di (ct fee	escript. nannel atures,	Woodland s	except at s				641		
Width channel (m)	sample patch 1	nduse)	point. Good sample pate		sample pa	tch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 & 4		1 8	k 4	1	<u> </u>	1.8	<u> </u>	1	& 4
Extent (I x w patch)	5x1		4x1		4x1		3x2		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	1		1		1		2		3	
	0.3		0.2		0.3		0.3		0.3	
Depth (metres) Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	tick all present in p	natch main	type(s) search		4		3		3	
cobble (6.5-15cm)		Dateri, maii	YES	ied iii ied	YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)	\/F0				\/F0					
woody debris other urban debris	YES				YES					
tree roots, fine	YES				YES					
moss	120				120					
filamentous algae										
other submerged veg.										
emergents Main substrate beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)	YES									
sand (<2mm)			YES		YES		YES		YES	
clay										
Siltation none										
	YES		YES		YES		YES		YES	
moderate										
high										
Refuges in bank none	VEC		VEC		VEC		VEC		VEC	
cobble/boulder tree roots, large			YES		YES		YES YES		YES	
vertical or undercut bank	. 20		YES				120			
dry stone wall			. 20							
other reinforced			_							
crayfish burrows										
Shading above Cravfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	0		0		0		0		c	
Search time (Mins)	10		5		10		5		10	
Bullhead present?	YES									
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method,	Score 3 3 3 3 3 3 3	JUS (Surve	ey conditions, p	valuries etc.),						
note total(s) by other methods in notes if applicable)	0									

		CRA	YFISH H	АВІТАТ	SURVE	Y FORI	И			
Catchment	Wye		River	Dulae Bro	ok (Buith R	oad)	Site (no., name)			7
		Surveyor		Duias Bro	OK (BUILLI K	uau)	Grid ref.	00.0440.6		
Date (dd/mm/yy)	31/08/2015	Flow norm	DR LW			Clarity,	(d/s end)	SO 0412 5	508	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	2	Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &	Duloo07						Time			
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Gardens ro	•	pack of outb	ouildings.				
	sample patc		sample pate		sample pa	tch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 8	3 .4	1 8	š 4	1 8	§ 4	1	& 4
Details (if not standard)										
Extent (I x w patch)	5x2		5x2		3x1		2x2		2x3	
Channel (1 margins, 2 mid, 3 both, other specify)	2		2	!	1		2		3	:
Depth (metres)	0.1		0.1		0.2		0.2		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5	_	5		4		5		5	
Refuges in channel	tick all present	in patch, mair		hed in red						
cobble (6.5-15cm) cobble (15-25.6cm)	YES YES		YES YES		YES YES		YES YES		YES YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)										
rubble (give size)										
woody debris other urban debris	YES		YES							
tree roots, fine	120		120							
moss										
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm) pebble (<6.5cm)	YES		YES		YES		YES		YES	
gravel (<1.6cm)	.20		. 20						. 20	
sand (<2mm)										
clay silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate high										
Refuges in bank none	YES		YES							
cobble/boulder							YES		YES	
tree roots, large										
vertical or undercut bank dry stone wall				-			YES		YES	-
other reinforced			<u> </u>							
crayfish burrows										
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	0		0		0		0		0	-
Search time (Mins)	15		15	i	5		5		5	
Bullhead present? Evaluation crayfish		Notes (surv	ey conditions, p	patches etc.):	Disintegrati	ing otter or	mink spraii	nt	1	
habitat for whole site (0						3				
none, 1 pres., 2 freq., 3 abund.)	Score									
in margins	3									
in mid channel	3									
in banks surveyability	3									
Problems pollution 1, erosion										
2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

		CRAY	/FISH H	АВІТАТ	SURVE	Y FORI	И			
Catchment	Wye		River	Dulae Bro	ok (Buith R	oad)	Site (no., name)			8
Date (dd/mm/yy)	31/08/2015	Surveyor	DR LW	Duias Bio	JK (BUILLI KI	uau)	Grid ref.	SO 0441 5	5562	0
Weather, good 1, mod 2, poor	31/00/2013	Flow norm 1, low 2, fall		Water		Clarity, good 1, mod		30 0441 3	502	
Photo ref. &	1	3, rise 4	2	temp. oC	12	2, poor 3	1			t V
Location	Dulas08						经管理	重人。		
Site length (m)	100	Descript. (channel features,								
Width channel (m)		landuse)	Grazing, ex							1-1-5
Survey method, std 1, quad	sample patc		sample pate		sample pa		sample pa		sample pa	
2, net/kick 3, trap 4, view 5	1 &	4	1.8	<u> </u>	1 8	<u> </u>	1 8	<u> </u>	1	& 4
Details (if not standard)	Evd		Evd		2.4		2.4		2.4	
Extent (I x w patch) Channel (1 margins, 2 mid, 3	5x1		5x1		3x1		3x1		3x1	
both, other specify)	3		3		3		3		3	
Depth (metres) Feature (1 marg. d'water, 2	0.2		0.2		0.2		0.2		0.3	3
pool, 3 glide, 4 run, 5 riffle)	4		5		4		3			
Refuges in channel	tick all present	in patch, mair	r	ned in red	VEC		VEC		VEC	
cobble (6.5-15cm) cobble (15-25.6cm)			YES YES		YES YES		YES YES		YES YES	
boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (>40cm)										
rubble (give size)	\ 									
woody debris other urban debris	YES									
tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents Main substrate beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)	YES		YES		YES		YES		YES	
sand (<2mm) clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate high										
Refuges in bank none										
cobble/boulder			YES				YES		YES	
tree roots, large	YES		YES				YES			
vertical or undercut bank dry stone wall										
other reinforced										
crayfish burrows										
Shading above	MOD	-	MOD		MOD		MOD		MOD	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0			
Search time (Mins)	10		10		5		5		10	
Bullhead present?						L				
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	Score 3 3 3 3 3	Notes (surv	ey conditions, p	pateries etc.);	ыск ассе	ss is major	inilidence			
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

	CRA	YFISH H	IABITAT	SURVE	Y FORI	М			
	<u> </u>					Site (no.,			
Catchment	Wye	River	Dulas Bro	ok (Buith R	oad)	name)			9
Date (dd/mm/yy)	31/08/2015 s	DR LW				Grid ref. (d/s end)	SO 0487 5	576	
	Flow no	m	144		Clarity,	, ,	000000		
Weather, good 1, mod 2, poor 3	1, low 2, fa 1 3, rise 4		Water 2 temp. oC	12	good 1, mod 2, poor 3	1	2000 DATE OF THE PROPERTY OF THE		* 15.0(#/×)#>
Photo ref. & Location	Dulas09								
Site length (m)	100							19	
Width channel (m)	Description (channel features, 2 landuse)	Grazing,	heavy stock Good access	access, ba	nk				
,	sample patch 1	sample pa		sample pa	tch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 & 4	1	& 4	1	& 4	1	& 4	1.5	§ 4
Details (if not standard)	1 0 4	'	α 4	1	x 4	1 0	x 4	1.0	x 4
Extent (I x w patch)	3x1	4x	1	2x3		2x2		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3	3		2		3	
Depth (metres)	0.2	0.		0.2		0.2		0.2	
Feature (1 marg. d'water, 2									
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	tick all present in patch, m		ched in red	4		4		5	
cobble (6.5-15cm)		YES	ched in red	YES		YES		YES	
cobble (15-25.6cm)	YES	YES		YES		YES		YES	
boulder (25.6-40cm)	YES	YES		YES		YES		YES	
boulder (>40cm)									
rubble (give size)									
woody debris		YES		YES					
other urban debris		\/F0				VE0			
tree roots, fine		YES				YES			
moss filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath									
bedrock									
cobble (6.5-15cm)									
pebble (<6.5cm)									
gravel (<1.6cm) sand (<2mm)									
sanu (<zmm) clay</zmm) 	YES	YES		YES		YES		YES	
silt	120	1120		120		120		120	
Siltation none									
low	YES	YES		YES		YES		YES	
moderate		1		ļ					
high	VEC	VEC	-	VEC		VEC		VEC	
Refuges in bank none cobble/boulder	YES	YES	_	YES		YES		YES	
tree roots, large		+							
vertical or undercut bank				İ					
dry stone wall									
other reinforced		1							
crayfish burrows					_				
Shading above	MOD	MOD		MOD		MOD		MOD	
Crayfish/10 refuges, or per unit (depending on method)	0		0	0		0		0	
Search time (Mins)	10	1		5		5		5	
Bullhead present?									
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 2 2 1 1 2	urvey conditions,	patches etc.);						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	2								
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0								

		CRA	YFISH H	АВІТАТ	SURVE	Y FORI	И			
Cataliment	Wyo		Divor	Dulas Pro	ak (Buith B	ood)	Site (no.,			10
Catchment	Wye 31/08/2015	Surveyor	River DR LW	Dulas Bro	ok (Buith R	oad)	name) Grid ref. (d/s end)	SO 0530 5	610	10
Date (dd/mm/yy) Weather, good 1, mod 2, poor		Flow norm 1, low 2, fall		Water		Clarity, good 1, mod	(ws end)	SO 0530 5	010	
Photo ref. &	1]	3, rise 4	2	temp. oC	12	2, poor 3	1	NU PROCES		
Location	Dulas10									1. 19
Site length (m)		Descript. (channel features,								
Width channel (m)	sample patch	landuse)	Land use: 0		od access sample pa	toh 2	cample par	toh 4	cample pa	tob 5
Survey method, std 1, quad							sample par		sample pa	
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	4	1 8	<u> </u>	1 8	<u> </u>	1.8	<u> </u>	1 8	§ 4
Extent (I x w patch)	3x2		3x2	,	5x2		5x2		5x3	
Channel (1 margins, 2 mid, 3										
both, other specify)	3		3		3		3		3	
Depth (metres) Feature (1 marg. d'water, 2	0.2		0.2	2	0.2		0.2		0.2	
pool, 3 glide, 4 run, 5 riffle)	4		4	-	4		4		4	
	tick all present i	n patch, mair	YES	hed IN RED	VEC		VEC		VEC	
cobble (6.5-15cm) cobble (15-25.6cm)			YES		YES YES		YES YES		YES YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)										
rubble (give size)										
woody debris other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm) gravel (<1.6cm)										
sand (<2mm)										
clay										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate	YES		YES		YES		YES		YES	
high										
Refuges in bank none cobble/boulder										
tree roots, large	YES		YES		YES		YES		YES	
vertical or undercut bank			YES		YES		YES		YES	
dry stone wall										
other reinforced										
crayfish burrows Shading above	MOD		MOD		MOD		HEAVY		MOD	
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)	0 10		5		<u>0</u> 5		10		0 10	
Bullhead present?	10			,	3		10		10	
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3		Notes (surv	ey conditions, p	patches etc.):[Intrance to	motocross	site			
abund.)	Score									
in margins in mid channel	2									
in banks	2									
surveyability	2									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method,										
note total(s) by other methods in notes if applicable)	0									

		CRAY	/FISH H	ABITAT	SURVE	Y FORI	И			
							Site (no.,			
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith R	oad)	name) Grid ref.			11
Date (dd/mm/yy)	09/09/2015	s	DR LW				(d/s end)	SO 0573 5	630	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1	Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &							with the			
Site length (m)	100	Descript. (channel features, landuse)	Metagrapa	maior oroco	ion Cood o				A A A A A A A A A A A A A A A A A A A	
Width channel (m)	sample patc		Motocross, sample pate		sample pa		sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5										
Details (if not standard)	1 &	4	10	<u> </u>	1 0	<u> </u>	1 0	§ 4	1	& 4
Extent (I x w patch)	3x2		5x2		2x2		4x2		3x2	
Channel (1 margins, 2 mid, 3										
both, other specify)	3		2		3		2		3	
Depth (metres) Feature (1 marg. d'water, 2	0.2		0.2	!	0.2		0.2		0.2	
pool, 3 glide, 4 run, 5 riffle)	3		3		4		4		4	
Refuges in channel	tick all present	in patch, mair		ned in red					-	
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm) rubble (give size)										
woody debris			YES							
other urban debris			ILO							
tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath					VEO		VEO		VE0	
bedrock					YES		YES		YES	
cobble (6.5-15cm) pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
silt	YES		YES							
Siltation none										
low	VE0		VE0		VE0		VE0		VE0	
moderate high	TES		YES		YES		YES		YES	
Refuges in bank none	YES				YES		YES			
cobble/boulder										
tree roots, large			YES						YES	
vertical or undercut bank					-					
dry stone wall										
other reinforced										
crayfish burrows	LIE AND S		LIE () 0 :							
Shading above Cravfish/10 refuges, or per	HEAVY		HEAVY	-	HEAVY		HEAVY		HEAVY	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	10		5	·	10		5		5	
Bullhead present?										
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 1 1 0 3	NOIES (Surv	ey conditions, p	odiches etc.)	Erosion on	Dariks and	motocross	Site. ITIDUL	ary nas go	ou nabitat
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	2									

		CRA	YFISH H	ABITAT	SURVE	EY FORI	М			
							Site (no.,			
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith R	load)	name)			12
Date (dd/mm/yy)	01/09/2015		DR LW				Grid ref. (d/s end)	SO 0604 5	5673	
		Flow norm		Water		Clarity,				
Weather, good 1, mod 2, poor 3		1, low 2, fall 3, rise 4		temp. oC		good 1, mod 2, poor 3				
Photo ref. &										
Location										
Site length (m)										
One longer (m)										
		Descript.	\\/hala 500			aall fla				
		(channel features,	Whole 500 Main flow a							
Width channel (m)		landuse)	arising fron							
Survey method, std 1, quad	sample pato	h 1	sample pate	ch 2	sample pa	atch 3	sample pa	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5										
Details (if not standard)										
Extent (I x w patch)					<u> </u>				L [_]	
Channel (1 margins, 2 mid, 3 both, other specify)										
					-					
Depth (metres) Feature (1 marg. d'water, 2					-				-	
pool, 3 glide, 4 run, 5 riffle)			<u> </u>	<u> </u>						
Refuges in channel	tick all present	in patch, ring	main type(s) s	earched						
cobble (6.5-15cm) cobble (15-25.6cm)										
boulder (25.6-40cm)										
boulder (>40cm)										
rubble (give size)										
woody debris other urban debris										
tree roots, fine										
moss										
filamentous algae other submerged veg.										
emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm) pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay silt										
Siltation none										
low										
moderate										
high Refuges in bank none										
cobble/boulder										
tree roots, large										
vertical or undercut bank										
dry stone wall other reinforced										
other reinforced crayfish burrows										
Shading above										
Crayfish/10 refuges, or per unit (depending on method)										
Search time (Mins)										
Bullhead present?										
Evaluation crayfish habitat for whole site (0		Notes (surv	ey conditions, p	patches etc.);						
none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins in mid channel	0	1								
in banks	0									
surveyability	0									
Problems pollution 1, erosion										
2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method,		1								
note total(s) by other methods in notes if applicable)										
o ii appiloabioj	I	ı								

C-+-b			CRAYFI	SH HAE	SITAT S	URVEY				
Catchme nt Date	Wye		River	Dulas Broo	ok (Buith R	oad)	Site (no., name)			13
(dd/mm/y y)	01/09/2015	Surveyor	DR LW				Grid ref. (d/s end)			
Weather, good 1, mod 2, poor 3		Flow norm 1, low 2, fall 3, rise 4		Water		Clarity, good 1, mod 2, poor 3				
Photo ref.		3, rise 4		temp. oC		z, poor 3				
Location										
Site length (m)		Descript. (channel features,		m unsuitab	le for surve	ey due to				
SURVEY	sample patc	rairicaae)	dry riverbe sample pat	tch 2	sample pa	tch 3	sample pa	tch 4	sample pat	tch 5
method, std 1, quad 2, net/kick 3, trap 4,										
3, trap 4, view 5 Details (if										
not standard)										
Extent (I × w patch)										
Channel (1 margins, 2 mid, 3										
both, other specify) Depth (metres)										
Feature (1 marg. d'water, 2										
d'water, 2 pool, 3 glide, 4 run, 5 riffle)										
Refuges										
channel cobble	tick all present	in patch, ring	main type(s) s	earched						
(6.5- 15cm) cobble										
(15- 25.6cm)										
boulder (25.6-										
40cm) boulder (>40cm)										
rubble (give										
size) woody debris										
other urban										
debris										
roots, fine moss										
filamento us algae										
other submerge d veg.										
emergent s										
Main substrat e										
beneath bedrock										
cobble (6.5- 15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm) clay										
silt Siltation										
none low moderate										
high Refuges										
in bank none cobble/bo										
ulder										
roots, large										
vertical or undercut bank										
dry stone wall other										
reinforce d										
crayfish burrows										
Shading above Cravfish/										
Crayfish/ 10 refuges, or per unit (depending on method)										
Search										
time (Mins) Bullhead										
present?		Notes (surv	ey conditions,	patches etc.)		l	l			
Evaluatio n crayfish										
habitat for whole										
site (0 none, 1 pres., 2 freq., 3										
freq., 3 abund.) in	Score									
margins in mid	0	-								
channel in banks	0									
surveyabil ity Problems	О	-								
pollution 1, erosion 2.										
(E if >33% affected), aliens 3.										
crayfish										
(by 1 method, note total(s) by other methods in										
by other methods in notes if applicable)										

10.11. Data Archive Appendix

The data archive contains:

- [A] The final report in Microsoft Word and Adobe PDF formats.
- [B] Species records, which are held on the NRW Recorder 6 database.

Metadata for this project is publicly accessible through Natural Resources Wales' Library Catalogue http://libcat.naturalresources.wales or http://catllyfr.cyfoethnaturiol.cymru by searching 'Dataset Titles'. The metadata is held as record no 115954.



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