

Assessment of the condition of the white-clawed crayfish *Austropotamobius pallipes* in the River Wye Special Area of Conservation in 2014-2016

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NRW Evidence Report No. 187

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1. Crynodeb Gweithredol

Rhwng mis Hydref 2014 a mis Medi 2016, cynhaliwyd gwaith i ddarparu'r data sydd ei angen i asesu a oedd Ardaloedd Cadwraeth Arbennig (ACA) Afon Gwy mewn cyflwr ffafriol ar gyfer y cimwch afon crafanc wen *Austropotamobius pallipes*. Arolygwyd Afon Edw, Nant yr Offeiriad, Nant Sgithwen, Nant Dulas (Builth Road), Nant Cleiro ac Afon Llynfi i asesu cyflwr poblogaethau a chynefin cimychiaid afon. Mae dwy afon bellach (Afon Duhonw ac Afon Irfon) yn cwblhau'r casgliad llawn o isafonydd ACA Afon Gwy. Fodd bynnag, ni chanfuwyd unrhyw gimychiaid afon yn y ddwy afon hyn yn 2003 ac nid oes unrhyw gofnodion dilynol, felly ni chafodd y rhain eu harolygu yn ystod yr arolwg cyfredol a thybiwyd nad oes unrhyw gimychiaid afon crafanc wen yn bresennol yn y ddwy afon hyn ar gyfer yr asesiad hwn.

Gwnaeth samplu ddilyn y fethodoleg a ddatblygwyd yn ystod rhaglen fonitro 2003 (Rogers a Watson 2004) ac roedd yn cynnwys cyfuniad o chwilio â llaw a rhwydo. Yn ystod yr arolwg, canfuwyd cimychiaid afon crafanc wen mewn ond tri o wyth isafon ACA Afon Gwy: Nant yr Offeiriad, Nant Sgithwen a Nant Cleiro (er nad yw'r olaf wedi'i chynnwys fel rhan o'r Ardaloedd Cadwraeth Arbennig (ACA), mae wedi'i chynnwys o fewn yr asesiad o gyflwr). Er bod niferoedd cimychiaid afon yn gymharol gadarn yn Nant yr Offeiriad a Nant Sgithwen, mae poblogaethau bellach wedi cael eu cyfyngu i'r rhagnentydd. Yn 2016, mae Nant Cleiro o hyd yn cefnogi poblogaeth lewyrchus, fel yr oedd yn 2003, ac mae hyn bellach yn ymddangos i fod yn un o boblogaethau mwyaf pwysig Afon Gwy gan nad oes lleihad mewn niferoedd na lledaeniad fel sydd wedi digwydd yn Nant Sgithwen a Nant yr Offeiriad. Mewn gwirionedd, mae niferoedd a lledaeniad wedi cynyddu yn Nant Cleiro. Mae'r diffyg cimychiaid afon crafanc wen yn Afon Edw, yn dilyn marwolaethau yn 2006, yn peri pryder gan fod y ddyfrffordd hon wedi bod yn bwysig iawn ar gyfer y rhywogaeth hon yn y gorffennol diweddar. Hefyd, roedd yn ymddangos fel nad oedd unrhyw gimychiaid afon yn Nant Dulas (Builth Road) yn 2015 er gwaethaf y ffaith bod y nant hon yn cefnogi poblogaeth dda yn ei rhannau isaf yn 2003.

Gan ddefnyddio'r amcanion cadwraeth dros dro fel rhan o'r asesiad o Statws Cadwraeth Ffafriol ar gyfer nodweddion Natura 2000, mae arolwg 2014–2016 yn dangos **nad yw ACA Afon Gwy yn cyflawni Statws Cadwraeth Ffafriol**. Er gwaethaf cynefin addas helaeth (Nodwedd 3) a diffyg clefyd ac absenoldeb rhywogaethau estron (Nodwedd 4), nid yw dwysedd y cimychiaid afon yn ddigon uchel (Nodwedd 1) ac nid yw'r dosbarthiad drwy gydol yr unedau monitro yn ddigonol (Nodwedd 2) ar gyfer ACA Afon Gwy i gyflawni Statws Ffafriol.

Yn 2013-14, cyflwynodd Uned Magu Pysgod Cynrig Cyfoeth Naturiol Cymru tua 3,000 o gimychiaid afon i Afon Chwefru, isafon o Afon Irfon. Fel rhan o'r gwaith cyfredol, roedd arolwg ychwanegol o hyd 1km mewn dwy rhan 500 medr o hyd yn y safleoedd cyflwyno wedi'i gynnwys, ond ni chanfuwyd unrhyw gimychiaid afon.

Mae argymhellion yn cynnwys adolygiad o'r mesurau amddiffyn ar gyfer poblogaethau cimychiaid afon crafanc wen sy'n goroesi a gwaith arolwg pellach i gadarnhau presenoldeb/absenoldeb cimychiaid afon brodorol ac estron ym mhob rhan o Afon Gwy a'i hisafonydd. **Oherwydd pwysigrwydd Nant Cleiro ar gyfer cimychiaid afon, argymhellir bod yr isafon hon yn cael ei hysbysu fel rhan o SoDdGA Afon Gwy ac ACA Afon Gwy.**

[Mae'r adroddiad hwn yn darparu cyfuniad o ganlyniadau arolygon cimwch afon 2014, 2015 a 2016 ac yn disodli adroddiadau arolwg 2014 a 2015 (Rogers a Watson, 2015 a 2016)].

2. Executive Summary

Between October 2014 and September 2016 work was undertaken to provide the data required to assess whether the River Wye SAC was in favourable condition for the white-clawed crayfish *Austropotamobius pallipes*. The Afon Edw, Nant yr Offeiriad, Sgithwen Brook, Dulas Brook (Builth Road), Clyro Brook and Afon Llynfi were surveyed to assess the condition of both crayfish populations and crayfish habitat. A further two rivers (Afon Duhonw and Afon Irfon) make up the full complement of the Wye SAC tributaries but no crayfish were found in these two rivers in 2003 and there are no subsequent records, so these were not surveyed during the current survey and it is assumed that no white-clawed crayfish are present in these two rivers for this assessment.

Sampling followed the methodology developed during the 2003 monitoring programme (Rogers & Watson 2004) and included a combination of manual searching and trapping. During the survey, white-clawed crayfish were only found in three of the eight tributaries of the River Wye SAC: Nant yr Offeiriad, Sgithwen Brook and Clyro Brook (although the latter is not included as part of the SAC, it is included within the condition assessment). Whilst crayfish numbers were relatively robust in Nant yr Offeiriad and Sgithwen Brook, populations have now become confined to the headwaters. In 2016, Clyro Brook still supports a thriving population as it did in 2003, and this now appears to be one of the most important populations in the Wye because there is no diminution in numbers or extent as in the Sgithwen and Offeiriad. In fact, both numbers and extent have increased in the Clyro. The 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. Also, there appeared to be no crayfish left in Dulas Brook (Builth Road) in 2015 despite supporting a good population in downstream reaches in 2003.

Using the provisional conservation objectives as part of the assessment of Favourable Conservation Status for Natura 2000 features, the 2014 - 2016 survey shows the River Wye SAC does **not achieve Favourable Conservation Status**. Despite abundant suitable habitat (Attribute 3) and a lack of disease and the absence of aliens (Attribute 4), the density of crayfish throughout is not high enough (Attribute 1) and the distribution throughout the monitoring units is not sufficient (Attribute 2) for the River Wye SAC to achieve Favourable Status.

In 2013-14, the Natural Resources Wales' Cynrig Fish Culture Unit implanted approximately 3000 crayfish into Afon Chwefru, a tributary of the Irfon. As part of the present work, an additional survey of a 1km stretch in two 500 metre sections at the introduction sites was included but no crayfish were found.

Recommendations include a review of protection for surviving white-clawed crayfish populations and further survey work to verify the presence/absence of native and alien crayfish throughout the main River Wye and all tributaries and sub-tributaries. Given the importance of Clyro Brook for crayfish, it is recommended that this tributary is notified as part of the Wye SSSI and Wye SAC.

[This report provides an amalgamation of the 2014, 2015 and 2016 crayfish survey results, and supersedes the 2014 and 2015 survey reports (Rogers & Watson, 2015 and 2016)].

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 have 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 NRW captive-rearing programme has released 3000 juvenile white-clawed crayfish into the Afon Chwefru (a tributary of the Afon Irfon).

3.2. Objectives

The objective of the 2014-2016 survey work was to undertake monitoring of the white-clawed crayfish and its habitat within the River Wye SAC in order to report on its condition as part of the assessment of Favourable Conservation Status for Natura 2000 features (see Table 1 below).

Table 1: Conservation	Objective for	the white-clawed	crayfish in the	River Wye SAC in 2003
and 2014-16.				

Attribute No.	Conservation objective (when the feature is in favourable condition)	To maintain the white-clawed crayfish <i>Austropotamobius pallipes</i> 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	table white-clawed	River beds with cobble and boulders larger than 15cm along the longest axis, and with little or no siltation.

4. Methods

Due to financial constraints, the survey work was undertaken over a three year period prioritizing rivers that had more recent white-clawed crayfish records, especially those with the most abundant populations.

In the 2003 survey, crayfish were found in the Afon Edw, Nant yr Offeiriad, Sgithwen Brook, Dulas Brook (Builth Road) Clyro Brook and Afon Llynfi and these were considered to be the most important **monitoring units**. Note that Clyro Brook has no statutory protection in terms of SSSI and SAC but was included as one of the monitoring units because of the presence of crayfish.

No crayfish were found in the Afon Irfon or Duhonw in 2003 (and there are no subsequent records) so these were not surveyed in 2014-2016 and it is assumed that no white-clawed crayfish are present in these two rivers for this assessment. However, a section up and downstream of the reintroduction points on the Afon Chwefru was included in the present survey to ascertain whether the 3000 juveniles introduced into Afon Chwefru had established a detectable population (see additional survey section 5.7) although these results are not included in the overall Conservation Status Assessment.

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

A total of 16 x 500m **stretches** were selected randomly within each monitoring unit (see Appendix A to F). 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 20m². Within each habitat patch, 10 potential **refuges** (large cobble or boulder >15cm along longest axis) were searched and the number of crayfish recorded.

A crayfish habitat recording sheet was completed for each site and includes 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 sheet 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.
- 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 in the years shown- National Grid Reference for down and upstream limits are shown in brackets.

- 2014 & 2015 Afon Edw (SO077470 SO137579)
- 2014 Nant yr Offeiriad (SO096431 SO012439)
- 2014 & 2015 Sgithwen Brook (SO113415 SO045391)
- 2015 Dulas Brook (Builth Road) (SO020530 SO063572)
- 2016 Clyro Brook (SO232454 SO192454)
- 2016 Afon Llynfi (SO179388 SO143230)
- 2016 Afon Chwefru (SN999527 SN988539)

(Afon Irfon and Duhonw were not surveyed)

5.1. Afon Edw

5.1.1. Abundance

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

Site	Distance from	No of crayfish per	Average	Classification of
	confluence	site	abundance per	population abundance
	(km)		patch	
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 moni	itoring unit	ABSENT/UNDETECTED

Table 3: Classification of population abundance – Afon Edw. COMBINED: STANDARD AND TRAPPING

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	45	45	45				
		Total for Afon E	dw monitoring unit	94%			

5.2. Nant yr Offeiriad

5.2.1. Abundance

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. There was a marked absence downstream but a total www.naturalresourceswales.gov.uk

of 122 crayfish were caught in the six most upstream sections of Nant yr Offeiriad in 2014. Raw data can be found in Appendix 1.

		COMBINE	D 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 monito	ring unit	MODERATE

Table 5: Classification of	population abundance -	Nant yr Offeiriad.
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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 (7%)
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	on
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	
	То	tal for Nant yr Offeiria	d Monitoring Unit	81%

5.3. Sgithwen Brook

5.3.1. Abundance

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. 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.

		COMBI	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

Table 8: Classification of population abundance in Sgithwen Brook.

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.

Site	In margin	In mid channel	In banks	
Sgithwen Brook				
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	1	
10	3	3	3	
11	3	3	2	
12	3	3	1	
13	3	3	2	
14	3	3	3	
15	3	3	2	
16	3	3	1	
Total	48	48	39	
	То	tal for Sgithwen Broo	k Monitorina unit	94%

5.4. Dulas Brook (Builth Road)

5.4.1. Abundance

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. No crayfish were found in any sites during the survey in 2015.

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

	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			
		a a manual.					

Total		0 Classification for moni	ABSENT/UNDETECTED	
13 Total	6	0	0	Absent/undetected
		-	, v	
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

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%

5.5. Clyro Brook

5.5.1. Abundance

Clyro Brook is approximately 6.5 km in length and was divided into thirteen 500m stretches. Each stretch was sampled using the standard method and trapping. A total of 58 crayfish were caught in the middle section of Clyro Brook in 2016. Raw data can be found in Appendix E.

Table 13: Classification of population abundance – Clyro Brook.

		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	1	0.2	LOW		
7	3	38	7.6	VERY HIGH		
8	3.5	16	3.2	HIGH		

9	4	3	0.6	LOW
10	4.5	0	0	Absent/undetected
11	5	8	0	Absent/undetected
12	5.5	0	0	Absent/undetected
13	6	0	0	Absent/undetected
Total		58		
		Classification for monito	MODERATE	

5.5.2. Analysis of catch in Clyro Brook

A total of 58 crayfish (22 females, 25 males and 11 that were too small to be sure of their sex) were caught on Clyro Brook. Carapace lengths ranged between 11 and 41 mm. The figure below illustrates carapace length frequency.



Figure 3: Summary of carapace length frequency of crayfish caught on Clyro Brook.

Table 14 shows analysis of other information gathered on examination of crayfish caught. Individual crayfish details can be found in Appendix I.

Table 14: Other information regarding crayfish population on Clyro Brook.

	Crayfish affected
Thelohania	3 (5%)
Damage	11 (19%)
Indication of females breeding (with glair)	0

5.5.3. Habitat

Table 15. Summary of evaluation of crayfish habitats – Clyro Brook. See Section
4.1.2 for explanation of values.

Site	In margin	In mid channel	In banks	
Clyro Brook				
1	1	1	1	
2	1	1	1	
3	1	1	1	
4	1	1	1	
5	1	1	1	
6	2	2	2	
7	3	3	3	

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8	3	3	3	
9	3	3	3	
10	1	1	1	
11	0	0	0	
12	0	0	0	
13	0	0	0	
Total	17	17	17	
	Total for Clyro Brook Monitoring Unit			

5.6. Afon Llynfi

5.6.1. Abundance

Afon Llynfi is approximately 8 km in length and was divided into sixteen 500m stretches. No crayfish were caught during the 2016 survey.

Table 16: Classification of population abundance – Afon Llynfi. COMBINED: STANDARD AND TRAPPING

		COMBINED: STANDARD AND TRAPPING				
Site	Distance from	No of crayfish per	Average	Classification of		
	confluence	site	abundance per	population abundance		
	(km)		patch			
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	0	0	Absent/undetected		
12	5.5	0	0	Absent/undetected		
13	6	0	0	Absent/undetected		
14	6.5	0	0	Absent/undetected		
15	7	0	0	Absent/undetected		
16	7.5	0	0	Absent/undetected		
Total		0				
		Classification for mon	itoring unit	ABSENT/UNDETECTED		

5.6.2. Habitat

Table 17: Summary of evaluation of crayfish habitats - Afon Llynfi. See Section 4.1.2 for explanation of values.

Site	In margin	In mid channel	In banks	
Llynfi				
1	2	2	1	
2	2	2	1	
3	3	3	2	
4	3	3	3	
5	3	3	3	
6	3	3	3	
7	3	3	3	
8	3	3	3	

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iotai	31	J Total for Afon Ll	35 ynfi monitoring unit	76%
Total	27	27	25	
16	1	1	1	
15	1	1	1	
14	0	0	1	
13	1	1	1	
12	3	3	3	
11	3	3	3	
10	3	3	3	
9	3	3	3	

5.7. Afon Chwefru

Two 500m sections were surveyed on Afon Chwefru being the two sections where crayfish were implanted by Cynrig Fish Culture Unit in 2012-2014. No crayfish were found during the 2016 survey but there was good crayfish habitat throughout.

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) 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 2014-16 only considered six of the eight monitoring units and it has been assumed that there are no original white-clawed crayfish populations in the other two monitoring units (Afon Irfon and Duhonw).

Attribute 1: Average number of crayfish

The average crayfish per patch was greater than one (above the lower limit, see Table 1) in the Offeiriad and Sgithwen but in none of the other monitoring units (Table 18).

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	0	65	0
Road)			
Clyro Brook	58	65	0.9
Afon Llynfi	0	80	0
Afon Irfon	Not surveyed	Not surveyed	Assumed zero
Afon Duhonw	Not surveyed	Not surveyed	Assumed zero
OVERALL	300	610	0.49

Table 18: Average crayfish per patch in each monitoring unit.

Assuming there are no crayfish in the Irfon or Duhonw, the average would be 300 crayfish in 610 sites, which is 0.49 crayfish per site. This is less than the threshold of 1 and therefore this **Attribute has not been reached**.

Attribute 2: Crayfish distribution

Crayfish were found in three of the six monitoring units surveyed (Table 14) and it is assumed that there were no white-clawed crayfish the other two (Afon Irfon and Duhonw).

Table 19: 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	
Clyro Brook	Moderate	
Afon Llynfi	Absent/undetected	
Afon Irfon	Assumed absent/undetected	
Afon Duhonw	Assumed absent/undetected	

Crayfish are present in three of the eight monitoring units which is below the threshold of five and therefore this **Attribute has not been reached**.

Attribute 3: Alien crayfish/plague and porcelain disease

No non-native crayfish were found in the survey and there was no evidence of plague although there may have been an outbreak in the Edw in 2006 (see Conclusion). Porcelain disease was found in less than 10% of the crayfish captured (the limit, see Table 1), thus this **Attribute has been met in the areas where crayfish were present**.

However, to attain a complete picture of the risks to white-clawed crayfish in the Wye SAC it is important to verify that no alien crayfish are present in any high risk areas, e.g. tributaries of Nant yr Offeiriad, Sgithwen Brook and Clyro Brook.

Monitoring unit	Incidence of Thelohania				
Nant yr Offeiriad	6%				
Afon Edw	Not applicable because no crayfish				
Sgithwen Brook	4%				
Dulas Brook (Builth Road)	Not applicable because no crayfish				
Clyro Brook	5%				
Afon Llynfi	Not applicable because no crayfish				
Afon Irfon	Not applicable because not surveyed				
Afon Duhonw	Not applicable because not surveyed				

Table 20: Incidence of thelohania in crayfish from each monitoring unit.

Attribute 4: Habitat Quality, extent of suitable habitat

Suitable habitat was present in 76% of the areas surveyed which exceeds the lower limit of 60% for this **Attribute**, which has therefore been met in this evaluation.

Monitoring unit	In	In mid-	In	Overall evaluation
	margins	channel	banks	
Nant yr Offeiriad	88%	92%	65%	81%
Afon Edw	94%	94%	94%	94%
Sgithwen Brook	100%	100%	81%	88%
Dulas Brook (Builth	74%	74%	69%	73%
Road)				
Clyro Brook	44%	44%	44%	44%
Afon Llynfi	77%	77%	73%	76%
Afon Irfon				Omitted from this evaluation but
				known to be good
Afon Duhonw				Omitted from this evaluation but
				known to be good
Suitable	habitat in are	76%		

Table 21: Percentage of suitable habitat

7. Conclusion

Despite an abundance of excellent habitat throughout all the tributaries of the River Wye SAC, the feature was found to be in Unfavourable condition in 2003 and is somewhat worse now because previously important populations of white-clawed crayfish in Afon Edw and Dulas Brook (Builth Road) appear to have been lost.

As signal crayfish are spreading in the Wye catchment, there is a 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, it is strongly suspected.

With regard to the individual monitoring units:

Nant yr Offeiriad was surveyed fully and yielded 1.5 crayfish per patch with low incidence of Thelohania (7%) 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 knowledge of crayfish distribution in the Nant yr Offeiriad.

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 complete the crayfish distribution picture, ascertain whether there are any signal crayfish in the catchment and perhaps 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 (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 knowledge of distribution.

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.

In **Clyro Brook** the average catch was 0.9 crayfish per patch, with low incidence of Thelohania (5%) and the overall habitat evaluation was 44% which is unusually low being only about half of that found in the other monitoring units of this SAC. This is because there is a 2km section (Sites 6-9) in the middle reaches of the river that is

excellent for crayfish yielding high catches similar to those in the good reaches of the Sgithwen and Offeiriad, but upstream (Sites 10-13) of this excellent area the Brook dries out in summer. Downstream of it the Brook enters the River Wye floodplain becoming much less steep and having virtually no fall over the 2.5km (Sites 1-5) leading to the confluence. Thus the Brook habitat upstream and downstream of the excellent middle section cannot support crayfish.

Afon Llynfi yielded no crayfish in 2016 although there was a population present at Site 11 in 2003 and populations have been reported in the River Ennig, one of its tributaries entering near Bronllys (Oliver Brown NRW, pers. comm.). Although the habitat is not as good as the best tributaries in the Wye (the Afon Edw, Nant yr Offeiriad and Sgithwen Brook), the mid sections of this monitoring unit (Sites 4 -12) offer very good habitat and could support a white clawed crayfish population. The monitoring unit as a whole is let down by less steep sections at the upstream (Sites 13-16) and downstream (sites 1-3) ends.

Afon Irfon was not surveyed because crayfish were not been found in this river in the 2003 SAC assessment, have not been found since the mid-1990s and it was not necessary to survey this river to reach a conclusive assessment of the SAC. There has however been an attempt to reinstate crayfish in the Irfon catchment by the introduction in 2013/14 of approximately 3000 fairly small crayfish into the Afon Chwefru tributary. Despite searching extensively for these in the area that they had been introduced, no crayfish were found.

Afon Duhonw, although it appears to have similar habitat to the very good crayfish rivers (Edw, Offeiriad and Sgithwen), was not surveyed because crayfish were not found in the 2003 SAC Assessment, have never been found in this river and it was not necessary to survey this river to reach a conclusive assessment of the SAC.

Overall Assessment: Based on the current 2014-16 survey, the assessment of attributes 1 to 5 for the River Wye SAC are summarised in Table 22.

Attribute	Conservation objective (when the feature is in favourable condition)	Result of Surveys	Assessment
1 (Overall number	Average number of crayfish	0.49 crayfish per	Favourable Condition
of crayfish)	recorded in each habitat	patch	not achieved
	patch greater than 1		
2 (Distribution of	Present in 5 of the 8	Present in 3 of the	Favourable Condition
A. pallipes	monitoring units	8 monitoring units	not achieved
throughout SAC)			
3 (Alien threat and	Absence of alien crayfish	No aliens, no	Favourable Condition
disease status)	and plague, and a <10%	plague and only 7% porcelain	achieved
	incidence of porcelain	disease	
	disease		

Table 22: Overall Assessment of Attributes for River Wye SAC 2014-16.

4 (Habitat quality)	Suitable habitat should be	Suitable habitat in	Favourable Condition
	present in 60% of the	76% of sampled	achieved
	sampled habitat patches	habitats	
5 (Water quality)	Water quality is at GQA	Not measured in	Not measured
	Biological Class A or B in 5	this survey	
	of the 8 monitoring units		
Overall			Favourable
			Conservation Status
			NOT ACHIEVED

The current survey shows that despite suitable habitat (Attribute 3), disease status and the absence of aliens (Attribute 4), **Favourable Conservation Status has not been achieved** because the density of crayfish throughout is not high enough (Attribute 1) and the distribution throughout the monitoring units is not sufficient (Attribute 2) for the River Wye SAC.

The 2003 survey had the same result, i.e. **Favourable Conservation Status was not achieved**, but the situation is now worse than in 2003 because crayfish have disappeared from the Edw, Dulas Brook (Builth Road) and Afon Llynfi and the downstream reaches of the Sgithwen Brook (Sites 2-5) and are less dense in all monitoring units surveyed except Clyro Brook, as summarised in Table 23.

Monitoring unit	Crayfish found in 2003 survey	Crayfish found in 2014-16 survey
Nant yr Offeiriad	133	122
Afon Edw	94	0
Sgithwen Brook	190	120
Dulas Brook (Builth Road)	12	0
Clyro Brook	9	58
Afon Llynfi	11	0
Afon Irfon	0	Assumed 0
Afon Duhonw	0	Assumed 0

Table 23: Comparison of crayfish numbers found in monitoring units in 2003 and	
2014-16.	

8. Recommendations

Given the strength of the crayfish population, it is recommended that Clyro Brook which currently has no statutory protection is notified as part of the Wye SSSI and Wye SAC.

Verify the presence/absence of native and alien crayfish by targeted survey of tributaries of Afon Edw, Clyro Brook, Sgithwen Brook and Nant yr Offeiriad.

Complete the survey of the main River Wye, all the tributaries (not just the monitoring units) and sub-tributaries to assess native populations and possible distribution of signal crayfish. (Note: Signals appear to be spreading from Nant Bachawy but it is not known by how much e.g. they may have spread across the catchment boundary to the Edw catchment and be responsible for the decimation of white-clawed crayfish there.)

For completeness, one could verify the current status of native crayfish in the Afon Irfon plus tributaries, Afon Duhonw and other tributaries of monitoring units where crayfish have been reported e.g. Afon Ennig.

Investigate any other reports of crayfish in the Wye catchment.

9. Acknowledgements

We thank Natural Resources Wales for funding the three year survey and for providing the necessary licences to carry out the work.

10. References

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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 116829.

11. Appendices

11.1. Appendix A: Location of sampling stations and distribution of white-clawed crayfish in the Afon Edw.





11.2. Appendix B: Location of sampling stations and distribution of white-clawed crayfish in Nant yr Offeiriad.

11.3. Appendix C: Location of sampling stations and distribution of white-clawed crayfish in Sgithwen Brook.



11.4. Appendix D: Location of sampling stations and distribution of white-clawed crayfish in Dulas Brook (Builth Road)



11.5. Appendix E: Location of sampling stations and distribution of white-clawed crayfish in Clyro Brook





11.6. Appendix F: Location of sampling stations and distribution of white-clawed crayfish in Afon Llynfi

11.7. Appendix G: Location of sampling stations in Afon Chwefru



11.8. Appendix H: Details of individual white-clawed crayfish records in Nant yr Offeiriad (in October 2014).

Catchment	Wye	River		Offeiriad		Offeiriad		Site reference	11	
Date	10/10/2014		Surveyors	DR LW			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	

CRAYFISH RECORDING FORM

Site 11

Site 12

CRAYFISH RECORDING FORM

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	М	22	ML				P1	1
2	A.p	F	27			G		P2	1
3	A.p	F	32			G		P2	1
4	A.p	М	26	MR	PD			P2	1
5	A.p	F	20		PD			P3	1
6	A.p	М	19					P3	1
7	A.p	М	42					P3	1
8	A.p	М	35	MR				P3	1
9	A.p	F	32			G		P4	1
10	A.p	F	17					P4	1
11	A.p	М	27						4
12	A.p	F	28			G			4
13	A.p	М	36						4
14	A.p	F	26	ML	PD				4
15	A.p	М	30	MR					4
16	A.p	М	34						4
17	A.p	F	28			G			4
18	A.p	М	28						4
19	A.p	М	36						4
20	A.p	F	26			G			4
21	A.p	М	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

Site 13

CRAYFISH RECORDING FORM

Catchment	Wye		River	Offeiriad			Site reference	13	
Catchinent	vvye		T(IVEI	Ollelliau			Sheet	15	
Date	10/10/2014		Surveyors	DR LW	DR LW			3	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	no. 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	М	42					P3	1
25	A.p	М	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	Offeiriad			Site reference	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			<u> </u>			4
47	A.p	F	26			G			4
48	A.p	М	28						4

Site 14

Catchment	Wye		River	Offeiriad			Site reference	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

CRAYFISH RECORDING FORM

Catchment	Wye		River	Offeiriad			Site reference	15	
							Sheet		
Date	09/10/2014		Surveyors	DR LW			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

11.9. Appendix I: 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	e 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				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	9	Э
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	1	0
Date	16/10/2014		Surveyors	DR LW			Sheet no.	2	
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	Ар	F	21	OI	PD			P3	1
2	Ар	F	17						4
3	Ар	М	33						4
4	Ар	М	30						4

Site 11

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	

	-	<u>.</u>		_	 	
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	1	3
Date	15/10/2014		Surveyors				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
Date	15/10/2014		Surveyors	DR LW		1	Sheet 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				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	М	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

CRAYFISH RECORDING FORM

Catchment	Wye		River	Sgithwen			Site reference	1	5	
Date	15/10/2014		Surveyors	DR LW	1		Sheet no.	Sg 7	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	Ар	F	19			G		P1	1	
3	Ар	М	18					P1	1	
4	Ар	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	

11.10. Appendix J: Details of individual white-clawed crayfish records in Clyro Brook (in August 2016)

Site Clyro 6

CRAYFISH RECORDING FORM

Catchment	Wye		River	Clyro			Site reference		6
Date	26/08/2016		Surveyors	DR LW			Sheet no.		1
Record no.	Species	Sex	Carapace length, mm	Damage	Disease	Breeding	Moult	Sub-site location ref.	Catch method
1	A pallipes	F	34	RR	PD			P3	1

Site Clyro 7

				Site	
Catchment	Wye	River	Clyro	reference	7
				Sheet	
Date	23/08/2016	Surveyors	DR LW	no.	1

			Carapace					Sub-site	
Record			length,					location	Catch
no.	Species	Sex	mm	Damage	Disease	Breeding	Moult	ref.	method
1	A.pallipes	F	35	MB				P1	1
2	A.pallipes	М	29					P1	1
3	A.pallipes		14					P1	1
4	A.pallipes		11					P1	1
5	A.pallipes		12					P1	1
6	A.pallipes		11					P1	1
7	A.pallipes		12					P1	1
8	A.pallipes	F	25					P1	1
9	A.pallipes	F	24					P1	4
10	A.pallipes	М	39					P1	4
11	A.pallipes	М	25	RL				P2	1
12	A.pallipes	F	38					P2	4
13	A.pallipes	F	34					P2	4
14	A.pallipes	М	34					P2	4
15	A.pallipes	М	34					P2	4
16	A.pallipes	М	32		Porcelain			P2	4
17	A.pallipes	F	38					P2	4
18	A.pallipes	F	36					P2	4
19	A.pallipes	F	25					P4	1
20	A.pallipes	М	26	RR				P4	1
21	A.pallipes	М	36					P4	1
22	A.pallipes	М	25					P4	4
23	A.pallipes	М	36					P4	4
24	A.pallipes	F	29					P4	4
25	A.pallipes	F	24					P5	1
26	A.pallipes	М	41					P5	1
27	A.pallipes	М	40					P5	1
28	A.pallipes	F	27	RL				P5	1
29	A.pallipes	F	29					P5	4
30	A.pallipes	F	35					P5	4
31	A.pallipes	F	28					P5	4
32	A.pallipes	М	19	ML				P5	4
33	A.pallipes	М	39					P5	4
34	A.pallipes	М	34					P5	1
35	A.pallipes	М	13					P5	1
36	A.pallipes		11					P5	1
37	A.pallipes		12					P5	1
38	A.pallipes		13					P5	1

Site Clyro 8

Catchme				Site reference	:
nt	Wye	River	Clyro	е	8
	23/08/201	Surveyor		Sheet	
Date	6	S	DR LW	no.	1

Record no.	Species	Se x	Carapac e length, mm	Damag e	Disease	Breedin g	Moult	Sub- site locatio n ref.	Catch metho d
1	A.pallipes		13					P1	1
2	A.pallipes		13					P1	1
3	A.pallipes		13					P1	1
4	A.pallipes	F	31	MR	Porcelai n			P1	4
5	A.pallipes	F	27	MR				P1	4
6	A.pallipes	M	27	RB				P1	4
7	A.pallipes	F	22					P1	4
8	A.pallipes	М	39					P2	4
9	A.pallipes	М	38	RL				P2	4
10	A.pallipes	М	27					P2	4
11	A.pallipes	F	19					P4	1
12	A.pallipes	F	28					P4	4
13	A.pallipes	М	31					P4	4
14	A.pallipes	F	23					P4	4
15	A.pallipes	М	35					P4	4
16	A.pallipes	М	22					P5	1

Site Clyro 9

Catchme nt	Wye		River	Clyro			Site referenc e		9
Date	23/08/201 6		Surveyor s	DR LW			Sheet no.		1
Record no.	Species	Se x	Carapac e length, mm	Damag e	Diseas e	Breedin g	Moult	Sub- site locatio n ref.	Catch metho d
1	A.pallipes	F	35					P1	2
2	A.pallipes	М	31					P1	1
3	A.pallipes	М	28					P2	2

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

			FISH H	ΑΒΙΤΑΤ	SURVE	Y FOR	M			
							Site (no.,			
Catchment	Wye	Surveyor	River	Edw			name) Grid ref.			1
Date (dd/mm/yy)	27/08/2015	s	DR, LW				(d/s end)	SO 0767 4	694	
Weather, good 1, mod 2, poor		Flow norm 1, low 2, fall		Water		Clarity, good 1, mod				
3 Photo ref. &	1	3, rise 4	2	temp. oC	13	2, poor 3	1			
Location	Edw01						220 5	No. 1	Contraction of the second	ALL .
										A States
Site length (m)	100							A.		122
	100							and the second		
		Descript.							-No.	
		(channel features,	Wooded, a	gricultural.	Access from	n road				and the
Width channel (m)		landuse)	good and c				1 martin		1.200	
Survey method, std 1, quad	sample patc	n 1	sample pate	ch 2	sample par	ich 3	sample pat	cn 4	sample pa	atch 5
2, net/kick 3, trap 4, view 5	1 &	4	18	<u></u> 4	18	<u> </u> 4	18	4	1	& 4
Details (if not standard)										
Extent (I x w patch) Channel (1 margins, 2 mid, 3	2x1		3x2		2x2		1x3		2x	2
both, other specify)	1		2		3		2		2	2
Depth (metres)	0.2		0.4		0.2		0.5		0.4	1
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, mair		ned 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)	YES		YES		YES		YES		YES	
rubble (give size)			= -							
woody debris other urban debris	YES		YES				YES			
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			YES							
Siltation none	YES		. 20				YES		YES	
low			YES		YES					
moderate high										
Refuges in bank none	YES				YES				YES	
cobble/boulder			YES				YES			
tree roots, large										
vertical or undercut bank dry stone wall										
other reinforced										
crayfish burrows										
Shading above Crayfish/10 refuges, or per	MOD		MOD		MOD		MOD		MOD	
unit (depending on method)	0		0		0		0			1
Search time (Mins)	5		5		5		5			5
Bullhead present? Evaluation crayfish	YES	Notes (surv	YES ey conditions, p	atches etc.):	YES Stone loach	n. Mink spr	YES		YES	1
habitat for whole site (0			-,, ,	,-						
none, 1 pres., 2 freq., 3 abund.)	Score									
in margins	3									
in mid channel	3									
in banks surveyability	3									
	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 FOR	M			
Ostaharan	10/		Disco	E du			Site (no.,			0
Catchment	Wye	Surveyor	River	Edw			name) Grid ref.			2
Date (dd/mm/yy)	27/08/2015		DR, LW				(d/s end)	SO 0847 4	712	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	2	Water temp. oC	13	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &							Are -			Ultra
Location	Edw02, Roa	d bridge at	upstream e	nd				2.311		X
Site length (m)	100	Descript.	Good acces	ss from roa	d. Land use	eis				A AN.
		features,	grazing; dis		•	iver.			-	2.1
Width channel (m)		landuse)	Large areas						1200	
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pat	ich 3	sample par	tch 4	sample pa	atch 5
2, net/kick 3, trap 4, view 5	1 &	4	18	k 4	18	k 4	18	& 4	1	& 4
Details (if not standard)					ļ					
Extent (I x w patch)	5x1		3x1		2x2		2x2		3x	1
Channel (1 margins, 2 mid, 3	1		1		2		0			1
both, other specify)					2		2			
Depth (metres) Feature (1 marg. d'water, 2	0.3		0.2		0.2		0.2		0.2	2
pool, 3 glide, 4 run, 5 riffle)	3		4		5		4			4
Refuges in channel	tick all present	in patch, mair		ned in red						
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		YES YES	
boulder (>40cm) rubble (give size)	YES YES		TEO		TEO		YES YES		TES	
woody debris	TE3						TE3			
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	
moderate										
high Refuges in bank none										
cobble/boulder	YES				YES				YES	
tree roots, large			YES				YES			
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		0		0		0			D
Search time (Mins)	5		10		5		10			5
Bullhead present?			YES				YES			
Evaluation crayfish habitat for whole site (o 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	Notes (surv	ey conditions, p	atches etc.):	Stone loacr	1. Mink spr	aint			
2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

				_			Site (no.,			
Catchment	Wye		River	Edw			name)			3
Date (dd/mm/yy)	23/08/2003	Surveyor	DR, LW				Grid ref. (d/s end)	SO 0930 4	767	
Date (dd/fillityy)	20/00/2000	Flow norm	DI, 200			Clarity,	(urs chu)	00 0000 4	101	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	2	Water temp. oC	13	good 1, mod 2, poor 3	1			
Photo ref. &	54.02						and the second	1 miles	120	Sec. and the
Location	Edw03								and in	
								1000000		
							10-10-10			e alla
Site length (m)	100						and the second	and in		A
							Calification :		- Contraction	
		Descript.					and the	- dire		
		(channel					- And	- Canton - 1		Langer and
Width channel (m)	8	features, landuse)	Grazing an	d woodland.	Good acc	ess	A TRUE T	and the second	1	
	sample patc	h 1	sample pate	ch 2	sample par	tch 3	sample pat	ch 4	sample pa	atch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1&	4	18	§ 4	18	3 4	1.8	k 4	1	& 4
Details (if not standard)										
Extent (I x w patch)	2x2		2X2	,	3X1		3x3		2x5	5
Channel (1 margins, 2 mid, 3										
both, other specify)	3		3	8	1		3		3	3
Depth (metres)	0.2		0.2	2	0.2		0.3		0.2	2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4	L	4		5		4	L I
Refuges in channel	tick all present	in patch, mair					<u> </u>			
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 YES		YES YES	
woody debris	120		120		120		120		120	
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	
Iow moderate							TEO			
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		C)	0		0		C)
Search time (Mins)	5		10	·	9		8		5	
Bullhead present?	YES		YES		YES		YES		YES	
Evaluation crayfish		Notes (surv	ey conditions, p	patches etc.):	Stone loach					
habitat for whole site (0 none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins	3									
in mid channel in banks	3									
surveyability	3									
	ľ									
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	YFOR	И			
Catabraat	Wwo		River	Edw			Site (no.,	4		
		Surveyor		Edw			name) Grid ref.		0 0000 47	20
Date (dd/mm/yy)		low norm	DR LW	\\/atar		Clarity,	(d/s end)	50	O 0960 478	53
Weather, good 1, mod 2, poor 3		, low 2, fall 5, rise 4	2	Water temp. oC	13	good 1, mod 2, poor 3	1			
Photo ref. & Location	Immediately of	lowestroo	m of first 10	0m			Tool .			
Site length (m)	100	<u>iowistiea</u>		0111						
	(Descript. channel eatures,					-			
Width channel (m)	9 1	anduse)	Good acces		· ·		1	5		and the
Survey method, std 1, quad	sample patch		sample pate		sample pa		sample patc		sample pa	
2, net/kick 3, trap 4, view 5 Details (if not standard)	1&4	1	18	k 4	18	\$4	1&	4	10	& 4
Extent (I x w patch)	4x1		4x3		2x2		5x2		3x3	
Channel (1 margins, 2 mid, 3 both, other specify)	1		3		1		1		3	
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		3		5		3		3	
Refuges in channel	tick all present in	patch, mair		ned in red						
cobble (6.5-15cm)	YES		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		YES	
rubble (give size)										
woody debris										
other urban debris tree roots, fine	YES									
moss	TES									
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath bedrock	VES		YES		YES		YES		YES	
cobble (6.5-15cm)	120		120				120		120	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm) clay										
silt										
Siltation none	YES				YES				YES	
low			YES				YES			
moderate										
high Refuges in bank none										
cobble/boulder	YES		YES	<u> </u>	YES		YES		YES	
tree roots, large	YES									
vertical or undercut bank	<u> </u>									
dry stone wall other reinforced										
crayfish burrows			<u> </u>							
Shading above	HEAVY		MOD		HEAVY		MOD		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	15		5		10		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	Score 3 3 3 3 3	NOTES (surve	ey conditions, p	atches etc.)S	tone loach, He	ron				
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	ΑΒΙΤΑΤ	SURVE	Y FORI	M			
Ostalassat	144		Diseas	Edu			Site (no.,			-
Catchment	Wye	Surveyor	River	Edw			name) Grid ref.			5
Date (dd/mm/yy)	28/08/2015	S Flow norm	DR LW			Clarity,	(d/s end)	SO 1012 4	813	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4		Water temp. oC	13	good 1, mod 2, poor 3	1			
Photo ref. &	Immodiatel	doumotro	om of first 10)0m				-3	Carles .	- Alton
Location Site length (m)	100	Descript. (channel	Good acces		ireas, heav	/ use by				
Width channel (m)	9	features, landuse)	General Pu		1000, 11001	400 by	and the second	100		
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pat	ch 3	sample pat	tch 4	sample pa	atch 5
2, net/kick 3, trap 4, view 5	1 &	4	1 8	k 4	18	k 4	18	<u> </u>	1	& 4
Details (if not standard)										
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	2x2 3		2x2 3		3x2 3		4x1 1		2x2	
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) Refuges in channel	4 tick all present	in patch, mair	5 n type(s) search		4		4		5)
cobble (6.5-15cm)		in paton, mai	YES		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)										
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 high										
Refuges in bank none					YES				YES	
cobble/boulder	YES		YES	Ì			YES			Ì
tree roots, large										
vertical or undercut bank										
dry stone wall										
other reinforced				ļ						
crayfish burrows										-
Shading above Crayfish/10 refuges, or per	MOD		LIGHT		LIGHT		LIGHT		NONE	
unit (depending on method)	0		0		0		0		C	
Search time (Mins)	10		5		10		15		5	5
Bullhead present? Evaluation crayfish			YES		Stopo loor!	kingfick	YES			
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	I NUICO (SUM	ey conditions, p	ratu nes etc. J. i		, kingina le				
note total(s) by other methods in	_									
notes if applicable)	0									

		CRA	FISH H	ABITAT	SURVE	Y FOR	М			
Catchment	Wye		River	Edw			Site (no., name)			6
	28/08/2015	Surveyor	DR LW	LOW			Grid ref. (d/s end)	SO 1056 4	1995	0
Date (dd/mm/yy) Weather, good 1, mod 2, poor	20/00/2013	Flow norm 1, low 2, fall		Water	10	Clarity, good 1, mod		30 1056 4	600	
Photo ref. &	1	3, rise 4	2	temp. oC	13	2, poor 3				
Location	Edw05 100									
Site length (m)		Descript. (channel features,								
Width channel (m)	10 sample patc	landuse) h 1	Good acce sample pate	, v	and woodla sample pa		sample pa	tch 4	sample pa	atch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 8		1 8			& 4		& 4		& 4
Details (if not standard)								1		
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	1x1		2x3 3		1x3 3		2x2 3		3x2	
Depth (metres) Feature (1 marg. d'water, 2	0.2		0.3		0.3		0.3		0.2	2
pool, 3 glide, 4 run, 5 riffle)	3		4		3		4		4	1
Refuges in channel	tick all present	in patch, mair		ned in red	VE0		1/50		VEO	
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	
rubble (give size)										
woody debris										
other urban debris					1/50					
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			YES						YES	
	YES			1	YES		YES			
moderate										
high										
Refuges in bank none			VEO		VE0		VE0		YES	
cobble/boulder tree roots, large	YES		YES		YES YES		YES			
					163					
vertical or undercut bank dry stone wall					ł					
other reinforced					<u> </u>		<u> </u>			
crayfish burrows					1					
Shading above	MOD		LIGHT		MOD		LIGHT		MOD	
Crayfish/10 refuges, or per unit (depending on method)										
unit (depending on method) Search time (Mins)	0		0		0		0		1(
Bullhead present?	YES				YES		10			
Evaluation crayfish habitat for whole site (o 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.):	Stone loach					
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	ΑΒΙΤΑΤ	SURVE		M			
Catabraat	Marc		Divor	Edu			Site (no.,			7
	Wye	Surveyor	River	Edw			name) Grid ref.			
Date (dd/mm/yy)	28/08/2015	s Flow norm	DR LW			Clarity,	(d/s end)	SO 1113 4	861	
Weather, good 1, mod 2, poor 3		1, low 2, fall 3, rise 4	2	Water temp. oC	14	good 1, mod 2, poor 3	1			
Photo ref. & Location	Edw07								A.F	
Site length (m)	100	Descript. (channel features,				1				
Width channel (m)	8 sample patc	landuse) h 1	Good acce		and woodla sample pa		sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad							sample pa			
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	4	12	& 4	1 6	& 4	1 2	& 4	1	& 4
Extent (I x w patch)	4x4		2x2	2	3x2		3x3		4x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3	8	2		3		1	
Depth (metres)	0.3		0.3	5	0.4		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5	5	4		3		5	
Refuges in channel	tick all present	in patch, mair		hed in red						
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)	120		120				TEO		120	
woody debris										
other urban debris										
tree roots, fine			YES						YES	
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath bedrock	VES		YES		YES		YES		YES	
cobble (6.5-15cm)	123		TES		123		TE3		TE3	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
silt	1/50		VE0		1/50		VE0	-		
Siltation none	YES		YES		YES		YES		VEC	
low moderate									YES	
high										
Refuges in bank none										
cobble/boulder	YES		YES		YES		YES		YES	
tree roots, large									YES	
vertical or undercut bank					ļ					
dry stone wall										
other reinforced										
crayfish burrows Shading above	LIGHT		MOD		MOD		MOD		LIGHT	
Crayfish/10 refuges, or per				1		-				
unit (depending on method)	0		0		0		0		0	
Search time (Mins) Bullbead present?	15		5 YES		10		10		10 YES	
Bullhead present? Evaluation crayfish		Notes (YES ey conditions, p	hatchoo cta) !	I Stone looch	<u> </u>	1	l	159	!
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		,							
note total(s) by other methods in										
notes if applicable)	0									

		CRA	FISH H	ABITAT	SURVE	Y FORI	M			
Catchment	Wye		River	Edw			Site (no., name)			8
		Surveyor		Edw			Grid ref.			0
Date (dd/mm/yy)	28/08/2015	S Flow norm	DR LW		-	Clarity,	(d/s end)	SO 1229 4	948	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	1	Water temp. oC	13	good 1, mod 2, poor 3	1			
Photo ref. &										Ser St
Location Site length (m)	Edw08 100	Descript. (channel features,						2		
Width channel (m)	7 sample patc	landuse)			and woodla sample pat		sample pa	tob 4	cample pr	tch 5
Survey method, std 1, quad			sample pate						sample pa	
2, net/kick 3, trap 4, view 5 Details (if not standard)	18	4	18	\$4	18	<u>k</u> 4	1 4	& 4	1	& 4
Extent (I x w patch)	3x1		2x3		4x1		3x2		3x3	2
Channel (1 margins, 2 mid, 3 both, other specify)	1		3		1		3		3	
Depth (metres)	0.2		0.3		0.2		0.3		0.3	3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		3		5		4		Ę	5
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)			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			YES							
cobble/boulder	YES		123		YES		YES		YES	
tree roots, large										
vertical or undercut bank										
dry stone wall			1	1	1		1		1	
other reinforced										
crayfish burrows					L					
Shading above Crayfish/10 refuges, or per	LIGHT		LIGHT		MOD		LIGHT		LIGHT	
unit (depending on method)	0		0		0		0		0)
Search time (Mins)	15		5	·	15		5		Ę	
Bullhead present?	YES				YES		YES			
Evaluation crayfish		Notes (surv	ey conditions, p	patches etc.):	Stone loach	, kingfisher				
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										
 (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	И			
							Site (no.,			
Catchment	Wye	Surveyor	River	Edw			name) Grid ref.			9
Date (dd/mm/yy)	29/08/2015		DR LW			01 1	(d/s end)	SO 1260 4	969	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1	Water temp. oC	13	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &									No.	Mer M
Location Site length (m) Width channel (m)	Edw09 100	Descript. (channel features, landuse)	Difficult acc			ences.				
	sample patc		sample pate		sample pat	tch 3	sample par	tch 4	sample pa	atch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 8	4	1.8	<u> </u>	1.8	k 4	1 /	<u> 3</u> 4	1	& 4
Details (if not standard)	10									
Extent (I x w patch)	3x1		3x1		2x2		2x2		4x*	
Channel (1 margins, 2 mid, 3 both, other specify)	1		1		2 2		2 2			
Depth (metres)	0.2		0.2		0.3		0.2		0.2	2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		3		4		3		3	3
Refuges in channel			n type(s) search						Ň	
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	
boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)										
woody debris other urban debris	ie2		YES							
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	
moderate										
high	VEC		VEC		VEC		VEO		VEO	
Refuges in bank none cobble/boulder	YES		YES		YES		YES		YES	
tree roots, large					t					
vertical or undercut bank										
dry stone wall			1		İ		1		1	
other reinforced										
crayfish burrows										
Shading above Crayfish/10 refuges, or per	NONE		NONE		MOD		NONE		NONE	
Craytish/10 refuges, or per unit (depending on method)	0		0		0		0		()
Search time (Mins)	5		10		10		10		Ę	
Bullhead present?									YES	
Evaluation crayfish habitat for whole site (o 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	atches etc.):	Stone loach	, heron				
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

		CRA	(FISH H/	ABITAT	SURVE	Y FORI	M			
Catchment	Wye		River	Edw			Site (no., name)			10
	S	urveyor		LOW			Grid ref.			10
Date (dd/mm/yy)	29/08/2015 s	OW norm	DR LW			Clarity,	(d/s end)	SO 1248 5	118	
Weather, good 1, mod 2, poor 3	1,	low 2, fall rise 4	1	Water temp. oC	13	good 1, mod 2, poor 3	1			
Photo ref. &	E-1.40							acr-		
Location Site length (m)	Edw10									
	(cl fea	escript. hannel atures,	Land use - immediately	downstrea	•	•			LINE .	
Width channel (m)	6 lar sample patch ?	nduse) 1	down very s		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 Details (if not standard)	1 & 4		18	4	18	\$4	18	& 4	1	& 4
_	2-4		0.0		4.4		2x5		1x4	
Extent (I x w patch) Channel (1 margins, 2 mid, 3	2x1		3x3		4x1		2X5		184	
both, other specify)	1		3		1		3		3	
Depth (metres) Feature (1 marg. d'water, 2	0.3		0.4		0.2		0.25		0.3	
pool, 3 glide, 4 run, 5 riffle)	2		3		2		4		3	
Refuges in channel	tick all present in p	patch, mair		ed in red			1/50			
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	
rubble (give size)							_			
woody debris	YES				YES					
other urban debris										
tree roots, fine			VEO				VEO			
moss filamentous algae	VES		YES YES	-	YES		YES YES		YES	
other submerged veg.	120		120		120		120		120	
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	1/50		1/50		VE0		V/50		¥50	
low moderate	YES		YES		YES		YES		YES	
high			-							
Refuges in bank none							YES			
cobble/boulder			YES		YES				YES	
tree roots, large			YES						YES	<u> </u>
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)	0		0		0		0		0	
Search time (Mins)	5		10		10		15		5	
Bullhead present?	YES		YES						YES	
Evaluation crayfish habitat for whole site (0	N	Otes (surve	ey conditions, p	atches etc.):	Stone loach					
none, 1 pres., 2 freq., 3										
abund.) in margins	Score 3									
in margins in mid channel	3									
in banks	3									
surveyability	3									
Total crayfish (by 1 method,										
note total(s) by other methods in notes if applicable)	0									

Catchment	Wye		River	Edw			Site (no., name)		11
Date (dd/mm/yy)	14/10/2014	Surveyors	DR LW				Grid ref.	SO 12602 5	2787
Weather, good 1, mod 2, poor 3	2	Flow norm 1, low 2, fall 3,	4				0.00.00	Start and finish time	1500-1700
Photo ref. &								ALC: NO	10 14 APR 32
Location	At 300m							THE	Contraction of the local division of the loc
Site length (m)	400	Descript. (channel features,							
Width channel (m)	5	landuse)							
Survey method, std 1, quad 2, net/kick 3, trap 4,	sample patch 1		sample pa	tch 2	sample pa	atch 3	sample patch	4	sample patch 5
view 5	1 &	4	1 & 4		1&4	ļ	1 8	. 4	1 & 4
Details (if not 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)	0.3		0.2		0.3		0.3		0.2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		4		3		4		4
Refuges in channel		notoh main tunal		n rod			· · · ·		1 -
cobble (6.5-15cm)	tick all present in YES	paten, main type(s	YES	nieu	YES		YES		YES
cobble (15- 25.6cm)	YES		YES		YES		YES		YES
boulder (25.6-			YES		YES		YES		YES
40cm) boulder (>40cm)	YES 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 Siltation	YES		YES	YES	YES	YES
none						
low						
moderate	YES		YES	YES	YES	YES
high						
Refuges in bank						
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 manually						
Crayfish by trap				·		
Total crayfish						
caught		Notes (survey	conditions nate	ches etc.):		
Evaluation crayfish habitat		Notes (survey (oonaliono, pat	51100 010.).		
for whole site (0						
none, 1 pres., 2 freq., 3 abund.)	Casara					
	Score					
in margins	2	1				
in mid channel	2	1				
in banks	2					
surveyability Problems	2					
pollution 1,						
erosion 2, (E if						
>33% affected), aliens 3.						
Total crayfish (by		1				
1 method, note						
total(s) by other methods in notes						
if applicable)	0					

						Site (no.,		
Catchment	Wye		River	Edw		name)		12
Date (dd/mm/yy)	14/10/2014	Surveyors	DR LW			Grid ref.	SO 12384 5	3394
Weather, good 1, mod 2, poor 3	2	Flow norm 1, low 2, fall 3, rise 4	4				Start and finish time	1300-1500
Photo ref. &						1.1		
Location	In first 100m						S. ave	1721-021-5-2
Site length (m)	400	Descript. (channel features,		ools wit	th slow flowing			
Width channel (m)	5	landuse)	glides		-	112 445 315		
Survey method,	sample patch 1		sample pate	ch 2	sample patch 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) Channel (1	2x1		3x1		3x2	3x1		2x1
margins, 2 mid, 3								
both, other specify)	1		1		3	1		1
Depth (metres)	0.2		0.2		0.3	0.2		0.2
Feature (1 marg. d'water, 2 pool, 3								
glide, 4 run, 5	2		2		2	2		2
riffle) Refuges in	3		3		2	3		3
channel	tick all present in	patch, main type		n red				
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	YES				YES			
other urban debris								
tree roots, fine	YES		YES		YES	YES		YES
moss								
filamentous algae other submerged veg.								
emergents								
Main substrate beneath								
bedrock	YES		YES					
cobble (6.5-15cm)								

pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)						YES
clay						
silt				YES	YES	
Siltation						
none						
low						
moderate YES	S		YES	YES	YES	YES
high						
Refuges in bank none						
cobble/boulder			YES		YES	
tree roots, large			YES			YES
vertical or undercut bank YES	S			YES		
dry stone wall						
other reinforced						
crayfish burrows						
Shading above LIG	ЭНТ		LIGHT	HEAVY	HEAVY	MOD
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2		Notes (survey c	conditions, patches e	etc.):		
freq., 3 abund.) Sco	ore					
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)						

Catabraat	Muc		Divor	Edw			Site (no.,		13	
Catchment	Wye		River	Edw			name)		13	
Date (dd/mm/yy)	14/10/2014	Surveyors	DR, LW	-			Grid ref.	SO 12047 5	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. &							Participant	A Mark		
Location	In first 100m.						and the second	R. Cont	一部的动物	
Site length (m) Width channel (m)	400	Descript. (channel features, landuse)	Land use access.	- graziı	ng with stock		Marianti Marianti			
	sample patch 1		sample pa	tch 2	sample par	tch 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	Ļ	1 & 4		1 &	4	1 & 4	
standard)										
Extent (I x w patch) Channel (1	5x1		7x1		2x2		2x2		5x1	
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	patch ain type(s) searched i	n red						
cobble (6.5-15cm)	YES	paton, an typo(d	YES	iriou	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. emergents										
Main substrate beneath					1		1		1	
bedrock			YES		YES		YES			
cobble (6.5-15cm)										

pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)	YES					YES
clay						
silt						
Siltation						
none						
low				YES		YES
moderate	YES		YES		YES	
high 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 o	conditions, 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				
1 method, note						
total(s) by other						
methods in notes if applicable)	0					

Catchment	Wye		River	Edw		Site (no., name)		14
Date (dd/mm/yy)	14/10/2014	Surveyors	DR LW			Grid ref.	SO 11549 5	55871
	14/10/2014	Flow norm 1,	DICEN			Ond rei.	00 11040 0	
Weather, good 1, mod 2, poor 3	2	low 2, fall 3, rise 4	4				Start and finish time	0900-1100
Photo ref. &								1 Car - and
Location	In first 100m						Sel	
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)		stock	ulture with access to water. n road bridge			
	sample patch 1		sample pa	tch 2	sample patch 3	sample patch 4	1	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	00		0.0		00	4.0		4.0
patch) Channel (1	3x2		3x2		3x2	4x2		4x2
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	s) searched i	n red				
cobble (6.5-15cm)	YES	paton,main type(a	YES	intea	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)								
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					Γ			Γ
bedrock								
cobble (6.5-15cm)						YES		1

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		Notes (survey o	onditions natches	setc.): Approximat	ely 6 years ago local resident re	enorted cravfish mortality
Evaluation crayfish habitat		Only dead cray	fish found; no mor	ibund. Wye and Us	sk Foundation informed but no	cause identified.
for whole site (0						
none, 1 pres., 2						
freq., 3 abund.)	Score					
in margins	3					
in mid channel	3					
in banks	3					
surveyability Problems	3					
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	Edw			Site (no., 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. &								11 M	A A A A A A A A A A A A A A A A A A A
Location	In first 100m						the state	5	t AL READER
Site length (m)		Descript. (channel features, landuse)	Land use - g stock access deep pools a Some mud b crayfish burr	s in an Ind sm anks v	eas. Areas on all stony riffl	of es.			
Width channel (m)	sample patch 1	landuse)	sample patch		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	12	1 & 4		1 &		1 & 4
Details (if not		•	101		101				1.41
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 channel	tick all present in	notch main type	(c) coarchod i	a rad					
cobble (6.5-15cm)	YES	paten, main type	YES	neu	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)									
woody debris									
other urban debris	XF0		VEO		V/50		NEO.		
tree roots, fine	YES		YES		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)	-					
clay						
silt	YES		YES	YES	YES	YES
Siltation						
none						
low						
moderate	YES					
high Refuges in bank			YES	YES	YES	YES
none				YES	YES	
cobble/boulder						
tree roots, large			YES			YES
vertical or undercut bank	YES		YES	YES	YES	YES
dry stone wall	125		120	120	125	120
other reinforced						
crayfish burrows						
Shading above	LOW		HEAVY	MOD	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 o	conditions, patches e	ətc.):		
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	<u> </u>					
1 method, note						
total(s) by other methods in notes						
if applicable)	0					

			CRAYFISH H		I SURVET	FURI			
Catchment	Wye		River	Edw			Site (no., name)		16
Date (dd/mm/yy)	13/10/2014	Surveyors	DR LW				Grid ref.	SO 13203 5	7976
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. &								and the second	- Statuts
Location	In first 100m						States and	W.C.	North Carl
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Land use gra Highly agricu			d.			No.
	sample patch 1		sample patch	า 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 8	. 4	1 & 4
Details (if not standard)									
Extent (I x w patch)	3x1		3x1		4x1		2x2		4x2
Channel (1 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. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		3		3		5		2
Refuges in	tiols off management in	watch waste town	- (-)	ام م م					
channel cobble (6.5-15cm)	tick all present in YES	i patch, main type	YES	niea	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) woody debris	YES		YES		YES		YES		YES
other urban debris	163		TEO		TEO		I EO		
tree roots, fine	YES				YES				YES
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath									
bedrock									
cobble (6.5-15cm)									

pebble (<6.5cm)						
gravel (<1.6cm)					YES	
sand (<2mm)						
clay	YES		YES	YES		YES
silt						
Siltation						
none .						
low			\/ _ _		N/50	N/50
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						
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 substrate.	conditions, patches e	etc.):Variable patch	es with lots of fallen trees. De	ep 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					

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

CRAYFISH HABITAT SURVEY 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	650 43123			
		Flow norm	22			0.10)	Start				
Weather, good 1,		1, low 2,					and finish				
mod 2, poor 3	1	fall 3, rise 4	1				time	1100-1300			
Photo ref. &						school and the					
Location	view upstream	from roadbrid	ae			The Terry	in the second	SIL			
Site length (m)	100										
Width channel (m)	5	5 Descript. (channel features, landuse) Access good through garden Land use - woodland and urban. Otters known to be in area. Good habitat 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	2		2		2	1		2			
mid, 3 both, other specify)	3		2		3	1		3			
	0.3		0.4		0.2	0.1		0.3			
Depth (metres) 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	arche	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			I		1	1		1			
bedrock								YES			
cobble (6.5-15cm)											
			•		•						

CRAYFISH HABITAT SURVEY FORM

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	1		1	1	1	1
pebble (<6.5cm)						
gravel (<1.6cm)	YES		YES	YES	YES	
sand (<2mm)						
clay						
silt						
Siltation none						
	YES		YES	YES	YES	YES
low				120	120	120
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						
	MOD		MOD	MOD	MOD	MOD
Shading above			MOD	- MICD		
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surv	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					

		CRATHS	H HABITAT	50R1					
Catchment	Wye		River	Offe	eiriad		Site (no., name)	2	
Date (dd/mm/yy)	13/10/2014	Surveyors	DR LW				Grid ref.		42 42629
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. &								a-10.00	
Location	Mid Point at footbridge								
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Access down very steep woodland footpath. Landuse - woodland. Series of riffles and pools, some very deep. Excellent habitat throughout.						
	sample patch 1	landuse)	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)	1 & 4				131			•	
Extent (I x w patch) Channel (1 margins, 2	1x6		3x3		6x1		5x2		3x2
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 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		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	¥50		NE0		NE0		1/50		
bedrock	YES		YES		YES		YES		YES
cobble (6.5-15cm)									
pebble (<6.5cm)									
gravel (<1.6cm)									

	1		1	1	1	1 1		
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, pat	ches etc.):				
Evaluation crayfish								
habitat for whole site	Score							
(0 none, 1 pres., 2 freq., 3 abund.)								
in margins	3							
in mid channel	2							
in banks	1							
	2							
surveyability								
Problems pollution 1,								
erosion 2, (E if >33%								
affected), aliens 3. Total crayfish (by 1								
method, note total(s)	_							
by other methods in	0							
notes if applicable)								
		CRAYFISH	HABITAT S	URVEY FOR	М			
---	--------------------------------	--	---	--	----------------	------------------------	--------------------------------	-------------------
Catchment	Wye		River	Offeiriad		Site (no., name)	3	
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW			Grid ref.	50.08	926 42561
Weather, good 1, mod 2, poor 3	12/10/2014	Flow norm 1, low 2, fall 3, rise 4	1				Start and finish time	1500-1700
Photo ref. &	La 4 at 4 00 m							-hall the
Location Site length (m) Width channel (m)	<u>In 1st 100m</u> 100 7	Descript. (channel features, landuse)	across fie very stee bank. Ex surveyab	ery difficul eld and dov p woodlan cellent ility once od habitat.	wn Id			
	sample patch 1		sample patch 2	samp patch		sample patch 4		sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Details (if not standard)	18	4	1 & 4	1 8	<u>&</u> 4	1 &	4	1 & 4
Extent (I x w patch)	1x8		3x3	8	x1	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 channel		tick all	present in p	atch, main typ	pe(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) rubble (give	YES		YES	YES		YES		YES
size)								
woody debris other urban								
debris								
tree roots, fine								
moss filamentous								
algae								

	1	1	1	1	1
other submerged					
veg.					
emergents Main substrate					
beneath					
				YES	YES
bedrock				163	TES
cobble (6.5- 15cm)					
pebble (<6.5cm)					
	YES	YES	YES		
gravel (<1.6cm)	123	123	123		
sand (<2mm)					
clay					
silt					
Siltation					
none	YES	YES	YES	YES	YES
low	165	TES	165	163	TES
moderate					
high					
Refuges in bank	YES	YES	YES	YES	YES
none					
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					
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 methods in notes if	0				
applicable)					

CRAYFISH HABITAT SURVEY FORM									
Catchment	Wye		River	Offe	eiriad		Site (no., name)	4	
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW				Grid ref.		96 42386
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. &							Sec. Sec. Sec.		
Location	In 1st 100m						All and a second	1 min	al an . D
Site length (m) Width channel (m)	100	Descript. (channel features,	Access dov wooded ba woodland a	inks. I		5			
		landuse)	good habit	at thro	bughout.	,			
	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 &	٨	1 & 4		1 & 4		1 &	Λ	1 & 4
Details (if not standard)	14	7	104		104		1 d	4	144
Extent (I x w patch) Channel (1 margins, 2	1x7		3x3		6x1		3x2		1x7
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	patcl	h, main type(s) sea	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									
other urban debris									
tree roots, fine									
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath									
bedrock			N/50		N/50)/F0
cobble (6.5-15cm)	YES		YES		YES		YES		YES
pebble (<6.5cm)									
gravel (<1.6cm)]		_				

	I					ı
sand (<2mm)						
clay						
silt						
Siltation						
none	VEC		VEC	VEO	VEC	
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						
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surve	ey conditions, pa	tches etc.):		
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)	0					
by other methods in notes if applicable)	0					

CRAYFISH HABITAT SURVEY FORM									
						Site (no.,			
Catchment	Wye		River	Offe	iriad	name)	5		
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW			Grid ref.		24 42923	
		Flow norm					Start and		
Weather, good 1, mod		1, low 2,					finish		
2, poor 3	1	fall 3, rise 4	1				time	1100 - 1300	
Photo ref. &					<u> </u>	T MALLES	Concession in the		
Location	Upstream end					time for	15.	al hant	
	-						Sec. 1		
							100		
	100					All and			
						14	2		
Site length (m)						- Andrews	a star	State - and	
						a last		and the second	
Width channel (m)	6	Descript.	Access goo	od acr	oss fields				
Width channel (m)	0	(channel	Land use g	razing	and				
		features, landuse)	woodland. river.	Stock	access to				
	sample	lanuuse)	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 &	1	1&4		1 & 4	1 &	1	1 & 4	
Details (if not	10	7	104		104	10	4	10.4	
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	
	0.2		0.2		0.1	0.3		0.2	
Depth (metres) Feature (1 marg.	0.2		0.2		0.1	0.0		0.2	
d'water, 2 pool, 3	2		5		4	4		4	
glide, 4 run, 5 riffle)									
Refuges in channel		tick a	-	patch	, main type(s) se	1	d	 1	
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								ļ	
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	
graver (<1.6cm)			. 20		. 20				

	1		I	1	1	1 1
sand (<2mm)						
clay						
silt						
Siltation none						
	YES		YES	YES	YES	YES
low	123		123	123	1123	123
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	Score	Notes (surve	ey conditions, pa	itches etc.):		
freq., 3 abund.)	3					
in margins 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					

CRAYFISH HABITAT SURVEY FORM									
Catchment	Wye		River	Offe	eiriad		Site (no., name)	6	
Date (dd/mm/yy)	12/10/2014	Surveyors	DR LW			_	Grid ref.	SO0768 Start	31 43093
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	1					and finish time	0900-1100
Photo ref. &								1.1	
Location	In 1st 100m						to the stand		建四日 学校
Site length (m)	100								
Width channel (m)	4	Descript. (channel features, landuse)	Landuse g	razing n one	a road bridge g for sheep. side open to ide.			T	
	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)	2x2		4x2		4x2		2x2		5x1
Channel (1 margins, 2 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, main type	(s) se	earched 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	YES								
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath									
bedrock			VEO		VEO		VEO		VEO
cobble (6.5-15cm)	YES		YES		YES		YES		YES
pebble (<6.5cm)							1		
gravel (<1.6cm)	I								

sand (<2mm)					
clay					
silt					
Siltation					
none	YES	YES	YES	VEC	YES
low	TES	TES	TES	YES	YES
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 notes if applicable)	0				

Catchment Wye River Offeriad Ste name) 7 Date (dd/mm/yy) 11/10/2014 Surveyors DR LW Grid ref. S0 07277 42979 Weather, good 1, mod 2, poor 3 2 DR LW Grid ref. S0 07277 42979 Photo ref. & Location Upstream end 1 Ison 1700 Ison 1700 Site length (m) 000 Site length (m) Flow, now location 1 Ison 1700 Site length (m) 5 Descript. (refues, watrinks and pools - sample patch 1 sample patch 2 sample patch 2 sample patch 3 sample patch 4			CRATFISF	HABITAT	SURV	ETFORM					
Catohment Wye Rver Offeniad name) 7 Date (dd/mm/yy) 11/10/2014 Surveyors DR LW Gnd ref. SO 0727 42979 Weather, good 1, mod 1 Tails, rise 4 1 So 0727 42979 Sint 1 Photo ref. & Determine 1 Tails, rise 4 1 So 0727 42979 Location Upstream end Imails, rise 4 1 So 0727 42979 Sint 1 Site length (m) 100 So 0727 42979 Sint 1 So 0727 42979 Sint 1 Width channel (m) 5 Descript: (channel metures) Access from roadbridge. Land urifes, varientals and pools - some very deep. Some very deep. Some very deep. Survey method, std 1, 4 view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, 4 view 7 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, 4 view 7 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, 4 view 7 2 2 & 5 5x3 4x3 4x3 Survey view 7 2								Site			
Date (dd/mm/yy) 11/10/2014 Surveyors DR LW Grid ref. SO 07277 42979 Weather, good 1, mod 2, poor 3 1	Catchment	Wye		River	Offe	eiriad			7		
Weather, good 1, mod 2, poor 3 Flow norm 1 Flow norm 1 Flow norm 1 Start 1 Start nd finish 1 Start nd finish 1 <th nd<="" start="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td></td>										
Weather, good 1, mod 2, poor 3 Flow norm 1 Flow norm 1 Flow norm 1 Start 1 Start 1	Date (dd/mm/yy)	11/10/2014	Surveyors	DR LW				Grid ref.	SO 0727	77 42979	
Weather, good 1, mod 2, poor 3 1, low 2, 1 kill 3, rise 4 1 Initial 1 kill 3, rise 4 Initial 3, rise 4 Initia 4 Initial 4 <thinitia 4<<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thinitia>											
2, por 3 1 fall 3, rise 4 1 time figure 1500-1700 Photo ref, & Location Upstream end Imme figure 1500-1700 Site length (m) 100 Stelength (m) Imme figure 1500-1700 Widh channel (m) 5 Descript. Access from roadbridge_Land Imme figure 1500-1700 Survey method, std 1, quad 2, net/kck 3, trap standard sample patch 1 sample sample patch 3 sample patch 1 sample sample patch 1 sample sample patch 1 sample patch 1 sample patch 2 sample patch 1 sample patch 1 sample patch 1 sample patch 1 sample patch 2 sample patch 2 sample patch 1 sample patch 2 sample patch 1 sample patch 2 sample patch 1	Weather good 1 mod										
Photo ref. & Upstream and Image: Constraint of the section or advininge: Land of the section of t		1		1					-	1500-1700	
Location Upstream end 100 100 Site length (m) 100 Width channel (m) 5 Bample patch 1 Access from roadbridge. Land inflex, waterfails and pools - some demonstread or some demonstemonstread or some demonstread or			1011 0, 1100 1	•						1000 1100	
Site length (m) 100 Site length (m) 5 Uidth channel (m) 5 Sample patch 1 Sample sample sample sample patch 2 sample patch 1 sample patch 2 sample patch 1 Sample sample patch 3 Survey method, std 1, tay 4, view 5 1 & 4 Details (find stand) 1 & 4 Standard) 2 Extent (I wa gatch) 2x5 Sample sample patch 1 3 Sample sample sample patch 4 1 & 4 Standard) 1 & 4 Extent (I wa gatch) 2x5 Sample sample patch 1 1 & 4 Standard) 2 Sample sample patch 1 1 & 4 Standard) 2 Standard) 2 Sample sample patch 4 1 & 4 Standard) 2 Sample sample sample patch 4 1 & 4 Standard) 2 Sample sample 2 3 Sample 2 3 Sample 2 3 Sample 2 3 Sample 2 2 Sample 2 3 Sample 2 2 Sample 2 3 Sample 2 2 Sample 2 2		Lipstroom and						State State	12 Frank		
Site length (m) Access from roadbridge. Land use - woodland. Series of riffles, waterfalls and pools - site woodland. Series of riffles, waterfalls and pools - Sample patch 3 sample patch 4 sample patch 5 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 sample patch 1 sample patch 2 sample patch 3 sample patch 4 sample patch 4 sample patch 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Extent (I xw patch) 2x5 2x5 5x3 4x3 4x3 Depth (metres) 0.3 0.3 0.2 0.2 0.2 Cobble (6.5-15cm) VES YES YES YES YES </td <td></td> <td>Opsileani enu</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>the</td> <td>1</td>		Opsileani enu							the	1	
Site length (m) Access from roadbridge. Land use - woodland. Series of riffies, waterfalls and pools - Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Access from roadbridge. Land use - woodland. Series of riffies, waterfalls and pools - 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 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 2 & 5 5 & 3 4 & 3 4 & 3 Detain (1 margins, 2 2 2 3 1 1 Survey method, std 1, quid, 3 both other gite, 4 run, 5 rifle) 4 4 3 4 4 Refuges in channel cobble (6.5-fScm) boulder (2-8-fScm) YES									A.M.	- The second second	
Site length (m) Access from roadbridge. Land use - woodland. Series of riffies, waterfalls and pools - Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 Access from roadbridge. Land use - woodland. Series of riffies, waterfalls and pools - 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 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 2 & 5 5 & 3 4 & 3 4 & 3 Detain (1 margins, 2 2 2 3 1 1 Survey method, std 1, quid, 3 both other gite, 4 run, 5 rifle) 4 4 3 4 4 Refuges in channel cobble (6.5-fScm) boulder (2-8-fScm) YES		100						and the	N. stau	and the case	
Width channel (m) 5 Descript. (channel anduse) Access from roadbridge. Land use - woodland. Series of some very deep. Sample patch 1 Sample patch 2 Sample patch 3 Sample patch 4 Sample patch 4 Sample patch 4 Survey method, stid 1, quad 2, netkick 3, trap 4, view 5									Carlo II	and the second	
Width channel (m) 5 Descript. (channel anduse) Access from roadbridge. Land use - woodland. Series of some very deep. Sample patch 1 Sample patch 2 Sample patch 3 Sample patch 4 Sample patch 4 Sample patch 4 Survey method, stid 1, quad 2, netkick 3, trap 4, view 5	Site length (m)								-	All and	
Image: Standard Series of files, waterfails and pools - some very deep.sample patch 1sample patch 2sample patch 3sample patch 4sample patch 5Survey method, std 1, quad 2, net/kick 3, trap standard 31 & 41 & 41 & 41 & 4Quad 2, net/kick 3, trap standard 31 & 41 & 41 & 41 & 4Details (if not standard)2x52x55x34x34x3Extent (i x w patch)2x52x55x34x34x3Channel (1 margins, 2 specify)0.30.30.20.20.2Depth (metres)0.30.30.20.20.2Peature (1 marg. 4, 2 col, 3)44344glide, 4 run, 5 riffie)2x5YESYESYESYESMoulder (25.6-x0cm)YESYESYESYESYESYESboulder (26.6-40cm)YESYESYESYESYESYESwoody debrisother urban debrismossfilamentous algaemossmossfilamentous algaemossfilamentous algae								a series and a series of the s			
Image: Standard Series of files, waterfails and pools - some very deep.sample patch 1sample patch 2sample patch 3sample patch 4sample patch 5Survey method, std 1, quad 2, net/kick 3, trap standard 31 & 41 & 41 & 41 & 4Quad 2, net/kick 3, trap standard 31 & 41 & 41 & 41 & 4Details (if not standard)2x52x55x34x34x3Extent (i x w patch)2x52x55x34x34x3Channel (1 margins, 2 specify)0.30.30.20.20.2Depth (metres)0.30.30.20.20.2Peature (1 marg. 4, 2 col, 3)44344glide, 4 run, 5 riffie)2x5YESYESYESYESMoulder (25.6-x0cm)YESYESYESYESYESYESboulder (26.6-40cm)YESYESYESYESYESYESwoody debrisother urban debrismossfilamentous algaemossmossfilamentous algaemossfilamentous algae								1	7	- Seran	
Image: Second Section of Se	Width channel (m)	5	Descript	Access fro	m roa	idbridge Lai	nd				
Ianduse) some very deep. sample sample sample sample patch 1 patch 3 patch 4 patch 5 Survey method, std 1, quad 2, net/kick 3, trap 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 8 4 1 & 8 4 Details (if not standard) 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Extent (1 w patch) 2x5 2x5 5x3 4x3 4x3 Depth (metres) 0.3 0.3 0.2 0.2 0.2 Feature (1 marg, dwater, 2 pool, 3 4 4 3 4 4 glide, 4 run, 5 riffle) YES YES YES YES YES ocoble (6.5-15cm) YES YES YES YES YES YES boulder (>40cm) YES YES YES YES YES YES voody debris YES YES YES YES YES YES filamentous algae Image: Single in the s	Width channer (m)	5		use - wood	lland.	Series of					
Sample patch 1sample patch 2sample patch 3sample patch 4sample patch 4Survey method, std 1, quad 2, net/kick 3, trap 4, view 51 & 41 & 41 & 41 & 41 & 41 & 41 & 41 & 41 & 41 & 41 & 41 & 42 net/kick 3, trap 4, view 52x55x34x34x3Channel (1 margins, 2 mid, 3 both, other specify)2x52x55x34x34x3Depth (metres)0.30.30.20.20.20.2Petute (1 marg, dwater, 2 pool, 344344Refuges in channel cobble (6.5-15cm)VESYESYESYESYESVESYESYESYESYESYESYESVESYESYESYESYESYESYESvoody debris other ubde (qive size)11111Main substrate bendrok111111Main substrate bendek111111Main substrate bendek111111Pable (-6.5-form mpebble (-6.5-formYESYESYESYESYES1YESYESYESYESYES1111YESYESYESYESYES1111Soulder (-5.5cmYESYESYES11111											
patch 1patch 2patch 3patch 4patch 5Survey method, sid 1, qued 2, net/kick 3, trap1 & 41 & 41 & 41 & 41 & 4Details (if not standard)1 & 41 & 41 & 41 & 41 & 4Details (if not standard)2x52x55x34 x34 x3Channel (1 margins, 2 mid, 3 both, other specify)2x52x55x34 x34 x3Deght (metres)0.30.30.20.20.2Peature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle)44344glide, 4 run, 5 riffle)44344obble (6.5-15cm)YESYESYESYESYESboulder (25.6-40cm)YESYESYESYESYESYESwoody debrisYESYESYESYESYESYESwoody debrisYESYESYESYESYESYESwoody debrisYESYESYESYESYESYESfilamentous algae other urban debrisIIIIImoss filamentous algae othele (6.5-15cm)YESYESYESYESYESYESMain substrate beneathIIIIIIMain substrate beneathIIIIIIMain substrate beneathIIIIIIImage: Strate in the indexYESYES<			landuse)		deep						
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Details (if not standard) 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Extent (I x w patch) 2x5 2x5 5x3 4x3 4x3 Channel (I margins, 2 mid, 3 both, other specify) 2 2 3 1 1 Depth (metres) 0.3 0.3 0.2 0.2 0.2 Feature (I marg. dWater, 2 pool, 3 glide, 4 run, 5 riffe) 4 4 3 4 4 Refuges in channel cobble (15-25.6cm) VES YES YES YES YES YES VES YES YES YES YES YES YES YES volder (25.6-4cm) YES YES YES YES YES YES view of vebris YES YES YES YES YES YES view of vebris Inc Inc Inc Inc <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>											
quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Details (f not standard) 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Extent (1 xw patch) 2x5 2x5 5x3 4 x3 4 x3 Channel (1 margins, 2 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. dwater, 2 pool, 3 gide, 4 run, 5 mifle) 4 4 3 4 4 Refuges in channel cobble (6.5-15cm) YES YES YES YES YES YES VES YES YES YES YES YES YES YES boulder (>400m) YES YES YES YES YES YES YES YES YES YES YES YES YES YES woody debris references, fine	Over every state of state			pateri z		pateri 5		paten 4		paten 5	
4, view 5 1 & 4	Survey method, std 1, quad 2 net/kick 3 tran										
standard)	4, view 5	1 &	4	1&4		1&4		1 &	4	1 & 4	
Extent (1 x w patch) 2x5 2x5 5x3 4x3 4x3 Channel (1 margins, 2 specify) 2 2 3 1 1 Depth (metres) 0.3 0.3 0.2 0.2 0.2 Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle) 4 4 3 4 4 Refuges in channel cobble (6.5-15cm) VES YES YES YES YES YES YES boulder (25.6-40cm) YES YES<											
Channel (1 margins, 2 mid, 3 both, other specify)22311Depth (metres)0.30.30.20.20.2Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle)44344Refuges in channel cobble (6.5-15cm)YESYESYESYESYESVESYESYESYESYESYESYESVeSYESYESYESYESYESVolder (26.6-40cm) boulder (24.0cm)YESYESYESYESVeSYESYESYESYESYESVeSYESYESYESYESYESVolder (24.0cm) boulder (24.0cm)YESYESYESYESVeSYESYESYESYESYESVesYESYESYESYESYESVesYesYesYesYesYesVoody debris tree roots, fine emergentsImage: Comparison of the submerged veg. emergentsImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.Image: Comparison of the submerged veg.Main substrate beneathYesYesYesYesYesVesYesYesYesYesYesYesVesYesYesYesYesYesYesVesYesYesYesYesYesYesVesYesYesYesYesYesYesVesYesYes<	standard)										
Channel (1 margins, 2 mid, 3 both, other specify)22311Depth (metres)0.30.30.20.20.2Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle)44344Refuges in channel cobble (6.5-15cm)YESYESYESYESYESVESYESYESYESYESYESYESVeSYESYESYESYESYESVolder (26.6-40cm) boulder (24.0cm)YESYESYESYESVeSYESYESYESYESYESVeSYESYESYESYESYESVolder (24.0cm) boulder (24.0cm)YESYESYESYESVeSYESYESYESYESYESVesYESYESYESYESYESVesYesYesYesYesYesVoody debris tree roots, fine emergentsImage: Comparison of the submerged veg. emergentsImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.Image: Comparison of the submerged veg.Main substrate beneathYesYesYesYesYesVesYesYesYesYesYesYesVesYesYesYesYesYesYesVesYesYesYesYesYesYesVesYesYesYesYesYesYesVesYesYes<	Extent (I x w patch)	2x5		2x5		5x3		4x3		4x3	
specify)Image: specify matrix specify mat	Channel (1 margins, 2										
Depth (metres)0.30.30.20.20.2Feature (1 marg. divater, 2 pool, 3 glide, 4 run, 5 riffle)44344Refuges in channel cobble (6.5-15cm)tick and the present in patch, main type(s) searched in red4Cobble (5.5-15cm)YESYESYESYESYESVESYESYESYESYESYESDoulder (>40cm)YESYESYESYESYESWoody debrisYESYESYESYESYESWoody debrisYESInternetInternetInternetMain substrate beneathInternetInternetInternetInternetMain substrate bedrockYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESInternetMain substrate beneathInternetInternetInternetInternetMain substrate bedrockYES		2		2		3		1		1	
Depin (metres)Image: constraint of the submerged veg.Image: constraint of the submerged veg.	specity)										
d'water, 2 pool, 3 glide, 4 run, 5 riffle)44344Refuges in channeltick all present in patch, main type(s) searched in redcobble (6.5-15cm)YESYESYESYESboulder (25.6-40cm)YESYESYESYESYESboulder (>40cm)YESYESYESYESYESwoody debrisYESYESYESYESYEStree roots, fineImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.bedrockYESYESYESYESYESYESYESYESYESYESYESYESMain substrateImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.Image: Comparison of the submerged veg.Image: Comparison of the submerged veg.YESYESYESYESbedrockYESYESYESYESYESYESYESbedrockYESYESYESYESYESYESbeble (<6.5-15cm)YESYESYESYESYESYESpebble (<6.5cm)YESYESYESYESYESYESImage: Comparison of the submerged veg.Image: Comparison of th	Depth (metres)	0.3		0.3		0.2		0.2		0.2	
glide, 4 run, 5 riffle)Image: comparison of the submerged veg.Image: comparison of the subme											
Refuges in channeltick all present in patch, main type(s) searched in redcobble (6.5-15cm)YESYESYESYEScobble (15-25.6cm)YESYESYESYESYESboulder (25.6-40cm)YESYESYESYESYESyESYESYESYESYESYESwoody debrisYESYESYESYESYESwoody debrisYESYESYESYESYESother urban debrisImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.bedrockYESYESYESYESYESyESYESYESYESYESYESbedrockYESYESYESYESYESyESYESYESYESYESYESbedrockYESYESYESYESYESyESYESYESYESYESYESbedrockImage: YESYESYESYESYESyESYESYESYESYESYESyESYESYESYESYESYES	d'water, 2 pool, 3	4		4		3		4		4	
VESYESYESYESYESYEScobble (6.5-15cm)YESYESYESYESYESboulder (25.6-40cm)YESYESYESYESYESboulder (>40cm)YESYESYESYESYESrubble (give size)YESYESYESYESYESwoody debrisYESYESYESYESYESother urban debrisImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.mother submerged veg.Image: Comparison of the submerged veg.bedrockYESYESYESYESYESYESVESYESYESYESYESYESYESbedrockYESYESYESYESYESYESbeble (<6.5-15cm)			tick	all procont in	natek	n main typo	(c) co	archad in ra	d		
cobble (15-25.6cm)YESYESYESYESYESboulder (25.6-40cm)YESYESYESYESYESboulder (>40cm)YESYESYESYESYESrubble (give size)YESYESYESYESwoody debrisYESYESYESYESother urban debrisYESYESYESYESfilamentous algaeImage: Size (Size (S	-			-	pater		(5) 50		u		
boulder (25.6-40cm) boulder (>40cm)YESYESYESYESYESYESYESYESYESYESYESwoody debris other urban debris tree roots, fine moss filamentous algae other submerged veg. emergentsImage: State of the substrate beneathImage: State of the substrate bedrock Cobble (6.5-15cm)Image: YESYESYESYESYESYESYESYESYESYESYESYESYESYES											
bollder (>40cm)YESYESYESYESYESrubble (give size) </td <td>cobble (15-25.6cm)</td> <td>YES</td> <td></td> <td>YES</td> <td></td> <td></td> <td></td> <td>YES</td> <td></td> <td></td>	cobble (15-25.6cm)	YES		YES				YES			
rubble (give size) woody debrisYESImage: size (file) YESYESother urban debrisImage: size (file)Image: size (file)Image: size (file)tree roots, fine mossImage: size (file)Image: size (file)Image: size (file)mossImage: size (file)Image: size (file)Image: size (file)filamentous algae other submerged veg. emergentsImage: size (file)Image: size (file)Main substrate beneathImage: size (file)Image: size (file)Image: size (file)bedrock cobble (6.5-15cm) pebble (<6.5cm)	boulder (25.6-40cm)	YES		YES				YES			
Woody debrisYESYESImage: state stat	boulder (>40cm)	YES		YES		YES		YES		YES	
woody debrisYESYESImage: state stat	rubble (give size)										
other urban debrisImage: state stat		YES						YES			
tree roots, fine mossImage: Second S											
mossImage: state											
filamentous algaeImage: submerged veg.Image: submerged veg.Image: submerged veg.Image: submerged veg.emergentsImage: submerged veg.Image: submerged veg.Image: submerged veg.Image: submerged veg.Main substrate beneathImage: submerged veg.Image: submerged veg.Image: submerged veg.Image: submerged veg.bedrock cobble (6.5-15cm) pebble (<6.5cm)YESYESYESYESYESImage: submerged veg.Image: submerged veg.Image: submerged veg.Image: submerged veg.Image: submerged veg.				ļ							
other submerged veg. emergentsImage: Constraint of the submerged veg.Image: Constraint of the submerged veg.Image: Constraint of the submerged veg.Main substrate beneathImage: Constraint of the submerged veg.Image: Constraint of the submerged veg.Image: Constraint of the submerged veg.Main substrate beneathImage: Constraint of the submerged veg.Image: Constraint of the submerged veg.Image: Constraint of the submerged veg.Image: Constraint of the submerged veg.bedrock cobble (6.5-15cm) pebble (<6.5cm)YESYESYESYESYESImage: Constraint of the submerged veg.Image: Constraint of the submerged veg.Image: Constraint of the submerged veg.Image: Constraint of the submerged veg.											
emergentsImage: Constraint of the system of the	-										
Main substrate beneath bedrock <td< td=""><td>other submerged veg.</td><td></td><td></td><td></td><td></td><td> </td><td></td><td></td><td></td><td></td></td<>	other submerged veg.										
beneath											
bedrock YES YES YES pebble (<6.5cm)											
Cobble (6.5-15cm) YES YES YES YES pebble (<6.5cm)											
pebble (<6.5cm)		VES		VEC		VEC		VEC		VES	
		TES		1E9		1E2		1E2		TEO	
gravel (<1.6cm)	pebble (<6.5cm)										
	gravel (<1.6cm)										

sand (<2mm)					
clay			_		
silt					
Siltation none					
	YES	YES	YES	YES	YES
low	125	125	120	125	125
moderate					
high Refuges in bank					
none					YES
cobble/boulder	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 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				

		CRATFIS	H HABITAT	SUR				
Catchment	Wye		River	Offe	eiriad	Site (no., name)	8	
Date (dd/mm/yy)	11/10/2014	Surveyors	DR LW			Grid ref.		33 42733
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. &	Downstream e	nd						
Location								March Andre P
Site length (m)	100						S. ALL	
Width channel (m)	5	Descript. (channel features, landuse)		ng an	d bridge. Lan d woodland. oughout.	d		(TE)
	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 8	. 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	patcl	h, main type(s	s) searched 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)								
woody debris						YES		
other urban debris								
tree roots, fine	YES				YES	YES		
moss								
filamentous algae								
other submerged veg.								
emergents								
Main substrate beneath			L		I	I		I
bedrock	XE0		VEO		VE0	VE2		
cobble (6.5-15cm)	YES		YES		YES	YES		YES
pebble (<6.5cm)								
gravel (<1.6cm)								D 70

sand (<2mm)					
clay					
silt					
Siltation					
none		×50			
low	YES	YES	YES	YES	YES
moderate					
high					
Refuges in bank					
none	YES	YES	YES	YES	YES
cobble/boulder	YES	113	1123	YES	
tree roots, large vertical or undercut	TES			TES	
bank					
dry stone wall					
other reinforced					
crayfish burrows					
Shading above	HEAVY	HEAVY	HEAVY	HEAVY	HEAVY
Crayfish manually					
Crayfish by trap					
Total crayfish caught					
ouugit					
Evaluation crayfish					
habitat for whole	Score				
site (0 none, 1 pres., 2 freq., 3 abund.)					
in margins	3				
-	3				
in mid channel	2				
in banks					
surveyability	3				
Problems pollution 1,					
erosion 2, (E if >33%					
affected), aliens 3.	ļ				
Total crayfish (by 1 method, note total(s)					
by other methods in	0				
notes if applicable)					

CRAYFISH HABITAT SURVEY FORM									
					Site				
Catchment	Wye		River	Offeiriad	(no., name)	9			
			T (T OI	Ononida	name)	•			
Date (dd/mm/yy)	11/10/2014	Surveyors	DR LW		Grid ref. S	O06264 42414			
		Flow norm			S	tart			
Moothor good 1 mod		1, low 2,				nd nish			
Weather, good 1, mod 2, poor 3	1	fall 3, rise 4	1			me 1100 - 1300			
Photo ref. &									
Location	Mid point				A				
Site length (m)	100								
Width channel (m)	4	Descript. (channel features, landuse)	Fully shade some eros with occas	od via road bridge. ed on left bank witi ion. Right side field ional shading. Lan ng . Good habitat	h d	Charles and the second			
	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 &	Δ	1&4	1 & 4	1 & 4	1 & 4			
Details (if not	10	- -	104	104	104	104			
standard)									
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	YES			
boulder (>40cm)	YES		YES	YES	YES	YES			
rubble (give size)									
						YES			
woody debris						120			
other urban debris	YES								
tree roots, fine	163								
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath			1	I	I				
bedrock									
cobble (6.5-15cm)	YES		YES	YES	YES	YES			
pebble (<6.5cm)									
gravel (<1.6cm)									
	•								

sand (<2mm)					
clay					
silt					
Siltation					
none		2/50			
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				

Catchment Wye River Offeinad Star (no. name) 10 Date (ddimm/yy) 11/10/2014 Surveyors DR LW Grid ref. SO 05661 42821 Weather, good 1, md 1 1 1 1 1 So 05661 42821 Weather, good 1, md 1 4 1 1 1 So 05661 42821 Photo ref. & In 1st 100 1 4 1 1 1 0000-1100 Site length (m) 100 Access down sleep wooded banks. Heavity wooded with ite integes in many lengt stocks. So invert in mark is the store in many lengt stocks. So invert in mark is the store is the store in mark is the store is t			CRAYFIS	H HABITAT	SUR	EY FORM		•		
Weather, good 1, mod 2, poor 3 Flow norm 1, law 2, lal 13, rise Start 1 Start and finish ime Start and finish	Catchment	Wye		River	Offe	eiriad			10	
Weather. good 1, mod 2, poor 3 In 1st 100m In 1st 100m In 1st 100m Site length (m) 100 0	Date (dd/mm/yy)	11/10/2014		DR LW				Grid ref.		61 42621
Location 100 Site length (m) 100 Width channel (m) 3 Descript. (channel features) Access down steep wooded banks. Heavily wooded with many large tree roots. Lind use - grazing, stock access to river. Survey method, std 1, quad 2, net/kck 3, trap 4, view 5 1 & 4 Details (if not stand 1) 3x3 Survey method, std 1, quad 2, net/kck 3, trap 4, view 5 1 & 4 Details (if not stand 1) 3x3 Standard) 2 Extent (I x w patch) 3x3 Access down steep wooded banks. Heavily wooded with many large tree roots. Ican use - grazing, stock access to river. grading 2, net/kck 3, trap 4, view 5 1 & 4 Channel (I margin, 2, main 3) 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 & 3 &		1	1, low 2, fall 3, rise	1					and finish	0900-1100
Site length (m) 100 Access down steep wooled banks. Heavily wooded with integrating, stock access to river. Width channel (m) 3 Descript. (channel landuse) Access down steep wooled banks. Heavily wooded with integrating stock access to river. Survey method, std 1, upd 2, net/skt 3, upd 2, net/skt 4, upd 2, net/skt 3, upd 2, net/skt 4, upd 3, upd 4, upd 3, up	Photo ref. &	In 1st 100m								
Site length (m) 100 Access down steep wooled banks. Heavily wooded with integrating, stock access to river. Width channel (m) 3 Descript. (channel landuse) Access down steep wooled banks. Heavily wooded with integrating stock access to river. Survey method, std 1, upd 2, net/skt 3, upd 2, net/skt 4, upd 2, net/skt 3, upd 2, net/skt 4, upd 3, upd 4, upd 3, up	Location								161	
Image: Channel Induces banks. Heavily wooded with many large tree rosts. Land use or cyrazing, stock access to river. sample patch 1 sample patch 2 sample patch 3 sample patch 4 sample patch 4 Survey method, std 1, quad 2, netkick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, netkick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Survey method, std 1, quad 2, netkick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 Standard) 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Standard) 3x3 3x3 4x2 3x3 3x3 Channel (1 margins, 2 mid, 3 both, other specify) 2 2 1 3 3 Depth (metres) 0.4 0.4 0.2 0.25 0.3 Peatrue (1 marg. divater, 2 pool, 3 3 4 4 3 4 glide, 4 run, 5 riffle YES YES YES YES YES VES YES YES YES YES YES YES vooble (55-15cm) YES YES YES YES YES boulder (>56.com) YES YES YES YES YES voody debris Y		100						A STA		
patch 1patch 2patch 3patch 4patch 5Survey method, std 1, (rad 2, netKick 3, standard)1 & 41 & 41 & 41 & 41 & 4Details (if not standard)1 & 41 & 41 & 41 & 41 & 41 & 4Extent (I x w patch)3x33x33x34x23x33x3Channel (1 margins, 2 specify)22133Deght (metres)0.40.40.20.250.3Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffe)34434Refuges in channel cobble (65-55cm)YESYESYESYESYESVESYESYESYESYESYESYESVESYESYESYESYESYESvoody debris tree roots, fine mossYESYESYESIIMain substrate bended (66.5-fism)YESYESYESIIMain substrate bended (66.5-fism)YESYESYESYESIMain substrate bended (65.5-fism)YESYESYESYESYESYESVESYESYESYESYESYESYESYESIIIIIIYESIIIIIISolide (6.5-fiscm) pebble (<6.5-fiscm)	Width channel (m)	3	(channel features,	banks. Hea many large	avily v e tree	vooded with roots. Land u	use er.		F125	AT SIG
quad 2, net/kick 3, trap 4, view 5 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Details (if not standard) 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 1 & 4 Extent (1 x w patch) 3x3 3x3 3x3 4x2 3x3 3x3 Channel (1 margins, 2 mid; 3 both, other specify) 2 2 1 3 3 Depth (metres) 0.4 0.4 0.2 0.25 0.3 Feature (1 marg, dwater, 2 pol, 3 glide, 4 run, 5 riffle) 3 4 4 3 4 Refuges in channel cobble (6.5-15cm) YES YES YES YES YES YES VES YES YES YES YES YES YES boulder (25.6 cm) YES YES YES YES YES YES VES YES YES YES YES YES YES woody debris YES YES YES Image: Simple simp										
standard)Image: standard standar	quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	4	1 & 4
Channel (1 margins, 2 mid, 3 both, other specify) 2 2 1 3 3 Peptinetres) 0.4 0.4 0.2 0.25 0.3 Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle) 3 4 4 3 4 Refuges in channel cobble (6.5-15cm) 3 4 4 3 4 VES YES YES YES YES YES YES VES YES YES YES YES YES YES boulder (25-6.40cm) YES YES YES YES YES YES woody debris YES YES YES YES YES YES woody debris YES YES YES YES Image: Compares and the set of the submerged veg. Image: Compares and the set of the submerged veg. Image: Compares and the set of the submerged veg. Image: Compares and the set of the submerged veg. Image: Compares and the set of the set										
mid. 3 both, other specify)22133Depth (metres)0.40.40.20.250.3Feature (1 marg. dwater, 2 pool, 3 glide, 4 run, 5 riffle)34434Refuges in channel cobble (6.5-15cm)YESYESYESYESYESVESYESYESYESYESYESYESboulder (>40cm) boulder (>40cm)YESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESwoody debris tree roots, fine mossYESYESImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.metrigImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.Image: Comparison of the submerged veg.Image: Comparison of the submerged veg.metrigYESYESYESYESYESYESYESYESYESYESYESYESYESYESImage: Comparison of the submerged veg.metrigYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESYESMain substrate beneathImage: Comparison of the submerged veg.Image: Comparison of the submerged veg.Image: Comparison of the submerged veg.pebble (<6.5:15cm)	Extent (I x w patch)	3x3		3x3		4x2		3x3		3x3
Depin (merces) Image: Constraint of the system of the sy	mid, 3 both, other	2		2		1		3		3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)34434Refuges in channel cobble (6.5-15cm)tick all present in patch, main type(s) searched in redCobble (6.5-15cm)YESYESYESYESCobble (15-25.6cm)YESYESYESYESboulder (25.6-40cm)YESYESYESYESboulder (>40cm)YESYESYESYESboulder (>40cm)YESIIIrubble (give size)YESIIIother urban debrisYESYESIIother urban debrisIIIIfilamentous algaeIIIIother submerged veg.IIIImossIIIIIbedrockYESIIIIbedrockYESYESYESYESYESbedrockYESIIIIbedrockYESYESYESYESYESbedrockYESYESYESYESYESbeble (<6.5rbcm)	Depth (metres)	0.4		0.4		0.2		0.25		0.3
Kitsgeb in diktionYESYESYESYESYEScobble (6.5-15cm)YESYESYESYESYESYESboulder (25.6-40cm)YESYESYESYESYESYESboulder (>40cm)YESImage: Second Se	Feature (1 marg. d'water, 2 pool, 3	3		4		4		3		4
cobble (6.5-15cm)YESYESYESYESYESYEScobble (15-25.6cm)YESYESYESYESYESYESboulder (25.6-40cm)YESYESYESYESYESYESboulder (>40cm)YESImage: Second Seco	Refuges in channel		tick	all present in	patc	h, main type(s) se	arched in re	d	
cobble (15-25.6cm)YESYESYESYESYESboulder (25.6-40cm)YESYESYESYESYESrubble (give size)YESImage: Size of the siz	-	YES		YES		YES		YES		YES
boulder (25.6-40cm)YESYESYESYESYESboulder (>40cm)YESIIIIrubble (give size)IIIIIIwoody debrisYESYESYESIIIwoody debrisYESIIIIIother urban debrisIIIIIItree roots, fineYESIIIIImossIIIIIIIfilamentous algaeIIIIIIIother submerged veg.IIIIIIIMain substrate beneathYESYESYESYESYESYESbedrockYESYESYESYESYESYESYESpebble (<6.515cm)		YES		YES		YES		YES		YES
boulder (>40cm)YESImage: Second		YES		YES		YES		YES		YES
rubble (give size) woody debrisImage: size of the size of the submerged veg. emergentsImage: size of		YES								
woody debrisYESYESInternational of the second of the seco										
tree roots, fine mossYESImage: Second sec		YES				YES				
Inconsistence Inconsistence moss Image: Second Sec	other urban debris									
mossImage: state of the submerged veg.Image: state of the submerged veg. <td>tree roots, fine</td> <td></td> <td></td> <td>YES</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	tree roots, fine			YES						
other submerged veg. emergents Image: Constraint of the substrate beneath Image: Constraint of the substrate beneath Image: Constraint of the substrate substrat										
other submerged veg. emergents Image: Constraint of the substrate beneath Image: Constraint of the substrate beneath Image: Constraint of the substrate substrat	filamentous algae									
emergents Image: Constraint of the system	-									
Main substrate beneath YES bedrock YES cobble (6.5-15cm) YES pebble (<6.5cm)										
cobble (6.5-15cm) YES YES YES YES pebble (<6.5cm)	Main substrate									
pebble (<6.5cm)	bedrock	YES								
	cobble (6.5-15cm)			YES		YES		YES		YES
gravel (<1.6cm)	pebble (<6.5cm)									
	gravel (<1.6cm)									

	Ì		1	1	i	1 1
sand (<2mm)						
clay						
silt						
Siltation						
none	VEO		NE0	VEO		
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank						
cobble/boulder	YES			YES	YES	YES
	120		YES	YES	YES	YES
tree roots, large vertical or undercut			1120	120	125	123
bank						
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	HEAVY		HEAVY	HEAVY	HEAVY	HEAVY
Crayfish manually						
Crayfish by trap						
Total crayfish caught						
buught		Patch 1, dov	vnstream end of	site was on bedr	ock with fewer refug	es. Patch 2 like Site
Evaluation crayfish		9.			-	
habitat for whole site	Score					
(0 none, 1 pres., 2 freq., 3 abund.)						
in margins	3					
in mid channel	3					
	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)	<u>^</u>					
by other methods in	0					
notes if applicable)						

CRAYFISH HABITAT SURVEY FORM									
							Site (no.,		
Catchment	Wye		River	Offei	riad		name)	11	
Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW				Grid ref.	SO 052	69 43142
		-						Start	
Weather, good 1, mod		Flow norm 1, low 2,						and finish	
2, poor 3	1	fall 3, rise 4	1					time	1500 - 1700
Photo ref. &							tan 2	The summer of	
Location	Downstream e	nd							
							Telescolo I	and the state of	
									The share
	100						and a		and the second second
							ALL MARKS		
Site length (m)								Topis	and the second second
							and I am Not	and your	
Width channel (m)	3	Descript. (channel	Access thr use grazin	ough f	armyard. La	and			
		features,	farmyard.	site jus	st 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			_		_		_		_
mid, 3 both, other specify)	3		2		3		2		3
	0.3		0.3		0.3		0.3		0.3
Depth (metres)	0.3		0.5		0.5		0.5		0.3
Feature (1 marg. d'water, 2 pool, 3	4		4		5		4		4
glide, 4 run, 5 riffle)			•		0		•		•
Refuges in channel		tick a	all present in	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									
other urban debris									
tree roots, fine				-+					
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath									
				T					
bedrock	YES		YES		YES		YES		YES
cobble (6.5-15cm)			. 20		120		. 20		
pebble (<6.5cm)									
gravel (<1.6cm)									

sand (<2mm)	1					
clay						
silt Siltation						
none						
low	YES		YES	YES	YES	YES
moderate						
high						
Refuges in bank						
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				8		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score	Notes (surve	ey conditions, p	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					

	CRAYFISH HABITAT SURVEY FORM									
					Site (no.,					
Catchment	Wye		River	Offeiriad	name)	12				
Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW		Grid ref.	SO 04635 43457				
						Start				
Weather, good 1, mod		Flow norm 1, low 2,				and finish				
2, poor 3	1	fall 3, rise 4	1			time 1300-1500				
Photo ref. &										
Location	In 1st 100m				Constanting the	and the second second				
						A State of A				
					-	A State of the				
	100				the second second	ALL STREET				
					1 3					
Site length (m)						Carlo Maine				
		5								
Width channel (m)	3	Descript. (channel	Good acce	ess across steep field.						
		features,		grazing and						
		landuse)	woodland							
	sample patch 1		sample patch 2	sample patch 3	sample patch 4	sample patch 5				
Current method and 1	paterri		pateri z	paich s	pateri 4	paton 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)										
stanuaru)										
Extent (I x w patch)	3x2		2x2	3x1	5x2	3x3				
Channel (1 margins, 2 mid, 3 both, other	3		3	1	1	2				
specify)	5		5	I I		2				
Danth (matura)	0.4		0.3	0.3	0.2	0.3				
Depth (metres) Feature (1 marg.										
d'water, 2 pool, 3	5		4	4	5	5				
glide, 4 run, 5 riffle)										
Refuges in channel		tick a	all present in	patch, main type(s) s	earched 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						
rubble (give size)										
woody debris										
other urban debris										
tree roots, fine	YES		YES	YES	YES	YES				
moss			1							
filamentous algae										
-										
other submerged veg.										
emergents Main substrate						<u> </u>				
beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)	YES		YES	YES	YES	YES				

	1		i	1	Í	1 1
sand (<2mm)						
clay						
silt						
Siltation						
none .	YES		YES	YES	YES	YES
low	TEO		TES	TES	TES	TES
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
	1		3	4	2	
Crayfish manually	I		5	4	Z	
Crayfish by trap				22		
Total crayfish caught				32		
		Patch 1 - ear	th banks on right	side		
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)	32					

CRAYFISH HABITAT SURVEY FORM										
					Site (no.,					
Catchment	Wye		River	Offeiriad	name)	13				
Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW		Grid ref.	SO 03771 43539				
		Flow norm 1, low 2,				Start and				
Weather, good 1, mod		fall 3, rise				finish				
2, poor 3	1	4	1			time 1100-1300				
Photo ref. &					ĺ	I				
Location	In 1st 100m									
						1 1 19				
						A June of the second				
	100				AL STAN	STREE CON				
Site length (m)						ANET MELTING				
					1					
			Access do	wn moderately steep	and and	AND AND AND AND				
Width channel (m)	3	Descript.	wooded ba	ink. Land use						
		(channel features,		and grazing with ck access to water.						
		landuse)		be excellent habitat.						
	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)										
Stanuaru)										
Extent (I x w patch)	3x3		2x3	3x3	3x3	3x2				
Channel (1 margins, 2 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.	<u> </u>									
d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		4	4	4	5				
Refuges in channel		tick	all present in	patch, main type(s) se	earched 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										
beneath bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm)	YES		YES	YES	YES	YES				
graver (<1.0011)										

	1	1	1	1	1 1
sand (<2mm)					
clay					
silt					
Siltation					
none			N/50	N/50	N/50
low	YES	YES	YES	YES	YES
moderate					
high					
Refuges in bank none		YES			
cobble/boulder					
tree roots, large	YES		YES	YES	YES
vertical or undercut bank					
dry stone wall					
other reinforced					
crayfish burrows					
Shading above	HEAVY	HEAVY	HEAVY	MOD	HEAVY
	3	10	12	1	4
Crayfish manually		10	12		
Crayfish by trap			18		
Total crayfish caught			48		
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	Score			rrows. An otter holt ha ad to use it. Photo of c	
in margins	3	A DESTRUCTION	440	PACENT	2
in mid channel	3		11115		
in banks	3		1 Alexandre	A States	
surveyability	3	N/ H	15-53	and the state of	
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.			Tai	20	e ¹⁰ 111 2 e
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	48		his	A CAR	

		CRAYFISH	HABITAT	SURVE	EY FORM				
							Site (no.,		
Catchment	Wye		River	Offeir	riad		name)	14	
Date (dd/mm/yy)	10/10/2014	Surveyors	DR LW				Grid ref.		00 43674
		Flow norm						Start and	
Weather, good 1, mod		1, low 2,						finish	
2, poor 3	1	fall 3, rise 4	1					time	0900-1100
Photo ref. &									
							a la t	-	and the second second
Location		IN 1	st 100m Access ove	er moo	rland Land	1		1 to a	Ster in
			use moorla	and gra	zing and	4	- Alertan	-	The second
	100		woodland. throughout		access		the second	-	1
			linoughout				and the start of	ALL S	C Kaylo
Site length (m)							Contraction of the	in the second	A STA
							A AN		
									の時間に見ている
Width channel (m)	1	Descript.							
		(channel features,							
		landuse)							
	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		•	101		101		1	•	1 4 1
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
specify)	0.1		0.2		0.2		0.2		0.2
Depth (metres)	0.1		0.2		0.2		0.2		0.2
Feature (1 marg. d'water, 2 pool, 3	5		4		4		4		4
glide, 4 run, 5 riffle)	Ĵ								
Refuges in channel		tick	all present ir	n patch	, main type	es sea	arched in rec	ł	
cobble (6.5-15cm)	YES		YES		YES		YES		YES
cobble (15-25.6cm)	YES		YES	\rightarrow	YES		YES		YES
boulder (25.6-40cm)	YES		YES		YES		YES		YES
boulder (>40cm)	YES		YES	-+					
rubble (give size)				-+					
woody debris				-+			YES		
other urban debris				\rightarrow			-		
tree roots, fine				-+					
				\rightarrow					
moss				-+					
filamentous algae			VEO	\rightarrow	VEO				VE0
other submerged veg.	YES		YES	\rightarrow	YES		YES		YES
emergents Main substrate									
beneath									
bedrock									
cobble (6.5-15cm)									
pebble (<6.5cm)			1	$\neg \uparrow$					
gravel (<1.6cm)	YES		YES	-+	YES		YES		YES
graver (<1.0cm)	-		-		-		· · · ·		-

	1		1	1	1	1 1
sand (<2mm)						
clay						
silt						
Siltation						
none	YES		YES	YES	YES	YES
low	11.5		123	1123		113
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			•		·	
Crayfish by trap				7		
Total crayfish caught				14		
		Notes (surve	y conditions, patc	hes etc.):		
Evaluation crayfish habitat for whole site	Score					
(0 none, 1 pres., 2	00010					
freq., 3 abund.)						
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	14					
notes if applicable)						

CRAYFISH HABITAT SURVEY FORM												
							Site (no.,					
Catchment	Wye		River	Offeir	iad		name)	15				
Date (dd/mm/yy)	09/10/2014	Surveyors	DR LW				Grid ref.		20 43857			
		Flow norm						Start and				
Weather, good 1, mod		1, low 2,						finish				
2, poor 3	1	fall 3, rise 4	1					time	1100-1300			
Photo ref. &							1 3 / 2	1 Cart				
Location	In 1st 100m							A. A.				
							A sult a	1	Kan A La La			
	400m							The state of the s	ALE AN			
								1945	A States			
Site length (m)							the second	And and	No.			
								的方法				
Width channel (m)	1	Descript.										
		(channel			ting from ro	ad.						
		features,	Low water. boulders/s		few large							
	aamala	landuse)			aamala		aamala		aamala			
	sample patch 1		sample patch 2		sample patch 3		sample patch 4		sample patch 5			
Survey method, std 1,				Γ	-							
quad 2, net/kick 3, trap												
4, view 5 Details (if not	1 &	. 4	1 & 4		1&4		1 &	4	1 & 4			
standard)												
Fatast (lassa stab)	3x1		4x1		5x1		5x1		7x1			
Extent (I x w patch) Channel (1 margins, 2												
mid, 3 both, other	3		3 3				3		3			
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)	4		4		4		4		4			
		tick all	present in pa	atch rin	na main typ	e(s)	searched in	red	11			
Refuges in channel	YES		YES		YES	0(0)	YES		YES			
cobble (6.5-15cm)	YES		YES		YES		YES		YES			
cobble (15-25.6cm)					113		ILO		115			
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)												
pebble (<6.5cm)	YES		YES		YES		YES		YES			
gravel (<1.6cm)	110		110		110		163		160			

	1		i.	Ì	1	1 1
sand (<2mm)						
clay						
silt						
Siltation						
none	YES		YES	YES	YES	YES
low	120		123	110	120	125
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	y conditions, pa	atches etc.):		
Evaluation crayfish habitat for whole site	Score					
(0 none, 1 pres., 2	Ocore					
freq., 3 abund.)						
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	12					
notes if applicable)						

					Site							
Catchment	Wye		River	Offeiriad	(no., name)	16						
Date (dd/mm/yy)	09/10/2014	Surveyors	DR LW		Grid ref.	SO 02021 44210						
						Start						
Weather, good 1, mod		Flow norm 1, low 2,				and finish						
2, poor 3	1	fall 3, rise 4	1			time 0900-1100						
Photo ref. &						Contraction of a second						
Location	In 1st 100m				Mar 1	With a state of the						
					公开的自己	A CONTRACTOR OF A CONTRACTOR						
					人派会议	A TABLE						
	400				1.5.1							
						A DAR						
Site length (m)						S - The States						
						A ANALYSING						
Width channel (m)	0.5	Descript.										
	0.0	(channel										
		features, landuse)		od walking from road. arge boulders/stones.								
	sample	landuse)			aamala	aampla						
	patch 1		sample patch 2	sample patch 3	sample patch 4	sample patch 5						
Survey method, std 1,					T							
quad 2, net/kick 3, trap		_										
4, view 5 Details (if not	1 &	4	1 & 4	1 & 4	18	4 1&4						
standard)												
Fatast (lassa stab)	4x0.5		4x0.5	5x0.5	5x0.5	5x0.5						
Extent (I x w patch) Channel (1 margins, 2												
mid, 3 both, other	3		3	3	3	3						
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)	4		4	4	4	4						
		tick	all present i	n patch, ring main type	e(s) searched	ـــــــــــــــــــــــــــــــــــــ						
Refuges in channel	YES		YES	YES	YES	YES						
cobble (6.5-15cm)	YES		YES	YES	YES	YES						
cobble (15-25.6cm)	113		113	1123	1123	TL3						
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	YES		YES	YES	YES	YES						
Main substrate beneath												
bedrock												
cobble (6.5-15cm)												
pebble (<6.5cm)					+							
	YES		YES	YES	YES	YES						
gravel (<1.6cm)	120		125	123	123	123						

	1		1	1	i	1 1
sand (<2mm)						
clay						
silt						
Siltation						
none	YES		YES	YES	YES	YES
low	163		163	163	163	TES
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		
		Notes (surve	y conditions, patc	hes etc.):		
Evaluation crayfish	Score					
habitat for whole site (0 none, 1 pres., 2	Score					
freq., 3 abund.)						
in margins	2					
in mid channel	2					
in banks	2					
surveyability	2					
Problems pollution 1,						
Total crayfish (by 1						
method, note total(s)	8					
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					

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

CRAYFISH HABITAT SURVEY FORM											
							Site (no.,				
Catchment	Wye	Surveyor	River	Sgithwen			name) Grid ref.			1	
Date (dd/mm/yy)	01/09/2015	•	DR LW				(d/s end)	SO 1136 4	147		
Weather, good 1, mod 2, poor				Water		Clarity,					
3	1&	4	1	temp. oC	12	good 1, mod 2, poor 3	1				
Photo ref. &								- 34		A life	
Location	Sg01		_				Section -	Mar.		10	
							A Pars		all in the	and and	
									-		
Site length (m)	100						15			2 防守	
									and the second		
		Descript.	Lirbon gorg	lens, grazin	a woodloor	t rood	de la	and the second	adaptive " the	to the second	
		(channel features,	0	d walls. Acc	0,				-1	A CONTRACT	
Width channel (m)	6	landuse)	footpath		•			and the second	And the second s		
Survey method, std 1, quad	sample patcl	h 1	sample pat	ch 2	sample pat	tch 3	sample par	tch 4	sample pat	ch 5	
2, net/kick 3, trap 4, view 5	1&	4	1 8	& 4	18	<u> </u>	18	& 4	18	k 4	
Details (if not standard)											
Extent (I x w patch)	1x6		2x6	6	5x1		3x3		3x2		
Channel (1 margins, 2 mid, 3											
both, other specify)	3		3		1		2		2		
Depth (metres) Feature (1 marg. d'water, 2	0.3		0.2	2	0.1		0.3		0.3		
pool, 3 glide, 4 run, 5 riffle)	5		5	5	4		4		4		
Refuges in channel	tick all present	in patch, mair		hed in red							
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 (20.0 40cm) boulder (>40cm)			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			<u> </u>								
vertical or undercut bank dry stone wall											
other reinforced			1	İ							
crayfish burrows											
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY		
unit (depending on method)	0		C)	0		0		0		
Search time (Mins)	10		10)	10		5		5		
Bullhead present? Evaluation crayfish	YES	Natas (YES ev conditions, j								
habitat for whole site (0		NOTES (surv	ey conditions,	patches etc.):	saimonios p	oresent thro	ougnout				
none, 1 pres., 2 freq., 3											
abund.) in margins	Score 3										
in margins 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										
. Star of a filler (an methods)											

		CRAY	FISH H	ABITAT	SURVE	Y FORI	М			
				0 14			Site (no.,			
Catchment	Wye	Surveyor	River	Sgithwen			name) Grid ref.			2
Date (dd/mm/yy)	01/09/2015	s	DR LW				(d/s end)	SO 1102	4140	
Weather, good 1, mod 2, poor 3	2	Flow norm 1, low 2, fall 3, rise 4	1	Water temp. oC		Clarity, good 1, mod 2, poor 3	1			
Photo ref. &							100	-		
Location	Sg02		_				3	No. Office		
Site length (m)	100									
Width channel (m)	4	Descript. (channel features, landuse)		0	ounds of Tre I waterfalls.					
	sample patc		sample pat	ch 2	sample pat	ch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad									1	
2, net/kick 3, trap 4, view 5 Details (if not standard)	18	4	10	& 4	1.8	k 4	10	& 4	1.	& 4
Extent (I x w patch)	3x2		4x1	I	3x3		6x1		2x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		1	1	3		1		3	
Depth (metres)	0.1		0.3	3	0.2		0.3		0.1	
Feature (1 marg. d'water, 2	5		2		5		2		5	
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	5 tick all present	in natch moi		-	5		2		5	
cobble (6.5-15cm)		in paten, man	YES	neu in leu	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				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										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate										
high			VEC				VE2			
Refuges in bank none cobble/boulder	VES		YES		YES		YES		YES	
tree roots, large	123				163				123	
vertical or undercut bank									1	
dry stone wall	1			+					1	
other reinforced										
crayfish burrows										
Shading above	HEAVY		MOD		HEAVY		MOD		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0	<u> </u>	0		0		0	
Search time (Mins)	5		15		5		15		5	
Bullhead present?	YES			-	YES				YES	
Evaluation crayfish habitat for whole site (o 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,	patches etc.):	Derelict fish	pass				
Total crayfish (all methods)	0			-			-		-	

		CRA	(FISH H)	ΑΒΙΤΑΤ	SURVE	Y FORI	И			
Ostalamant	10/		Diver	Quithurs			Site (no.,			0
Catchment	Wye	Surveyor	River	Sgithwen	1		name) Grid ref.			3
Date (dd/mm/yy)	01/09/2015		DR LW			0	(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. &									6	1 - 10 - 24
Location Site length (m)	Sg03 100	Descript. (channel features,	Wooded/ur		•	ock and				
Width channel (m)	5	landuse)	waterfalls. A			tob 2	comple po	tob 4	cample pr	tch 5
Survey method, std 1, quad	sample pato		sample pate		sample pat		sample pa		sample pa	
2, net/kick 3, trap 4, view 5 Details (if not standard)	18	4	18	k 4	18	<u> </u>	18	& 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	2
Depth (metres)	0.4		0.2		0.2		0.2		0.3	8
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		4		5		4		5	5
Refuges in channel	tick all present									
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)	YES		YES		YES		YES		YES	
rubble (give size) woody debris									YES	
other urban debris									120	
tree roots, fine			YES						YES	
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath	1/50		1/50		1/50		1/50		VE0	
bedrock cobble (6.5-15cm)	YES	-	YES		YES	-	YES		YES	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	YES	-	YES		YES	-	YES		YES	
low moderate										
moderate high										
Refuges in bank none	YES			-					YES	
cobble/boulder										
tree roots, large					YES					
vertical or undercut bank										
dry stone wall										
other reinforced										
crayfish burrows	HEAVY		HEAVY						HEAVY	-
Shading above Crayfish/10 refuges, or per					HEAVY		HEAVY			
unit (depending on method)	0		0		0		0		C	
Search time (Mins)	5		10		5		10		5	5
Bullhead present? Evaluation crayfish		Notes :	ey conditions, p		YES		YES	•		<u> </u>
habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3 3		ey conditions, p	aicnes eic.).		ea iidit eace	FIETI TIADILA	L		
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (all methods)	0			_			_			

		CRA	(FISH H)	ABITAT	SURVE	Y FORI	M			
Catabraat	Millio		Divor	Sgithwen			Site (no.,			4
Catchment	Wye	Surveyor	River	Syltriweri			name) Grid ref.			4
Date (dd/mm/yy)	02/09/2015	S Flow norm	DR LW		_	Clarity,	(d/s end)	SO 1016 4	091	
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. &	0-04							and the		Star -
Location	Sg04									
Site length (m)	100	Descript. (channel features,	Urban and	wooded. Ri	ffle upstrea	m of				
Width channel (m)		landuse)	waterfalls. A				no lin			
Survey method, std 1, quad	sample patc		sample pate		sample pa		sample pa		sample par	
2, net/kick 3, trap 4, view 5 Details (if not standard)	18	4	18	k 4	18	\$ 4	18	& 4	18	<u>k</u> 4
Extent (I x w patch)	3x1		2x3		4x1		4x1		6x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		1		1		3	
Depth (metres)	0.2		0.3		0.2		0.2		0.4	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		3		5		2		4	
Refuges in channel		in patch, maii	n type(s) search							
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)	YES		YES		YES		YES		YES	
rubble (give size) woody debris	VEC				YES				YES	
other urban debris	IL3				163				IE3	
tree roots, fine			YES		YES				YES	
moss			. 20		0				0	
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								ļ		
Refuges in bank none	VEC		VEC		VEC		VEC		VEC	
cobble/boulder tree roots, large			YES		YES YES		YES		YES YES	
	123								IE3	
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)	05		0		0		0 10		0 15	
Bullhead present?	5		9 YES		9 YES		10		YES	
Evaluation crayfish habitat for whole site (o 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	atches etc.):				<u>.</u>		
Total crayfish (all methods)	0									

		CRA	(FISH HA		SURVE	Y FOR	М			
			-				Site (no.,			_
Catchment	Wye	Surveyor	River	Sgithwen	Î		name) Grid ref.			5
Date (dd/mm/yy)	02/09/2015		DR LW			Clarity	(d/s end)	SO 0948 4	1084	
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. &	005								S. Carl	the Manager
Location Site length (m)	Sg05 100									
		Descript. (channel features,	Woodlanda			azing.			1	
Width channel (m)	sample patc	landuse) h 1	Access from		ge. 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 Details (if not standard)	18	4	18	. 4	10	k 4	10	<u>k</u> 4	10	\$ 4
Extent (I x w patch)	2x2		3x2		3x1		2x2		5x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		1		2 2		3	
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	tick all present	in patch, mair	type(s) search	ed in red						
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										
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										
Siltetion	VEC		VEC		VEC		VEC		VEC	
Siltation none	YES		YES		YES		YES		YES	
moderate										
high										
Refuges in bank none	YES		1/50		1/50		YES		YES	
cobble/boulder tree roots, large			YES YES		YES				YES	
vertical or undercut bank			120						120	
dry stone wall										
other reinforced										
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)	10		5		5		10		10	
Bullhead present? Evaluation crayfish		Notes /	YES		YES		YES			
habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3	I NOLIES (SUM	ey conditions, p	aurnes etc.):						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish (all methods)	0									

	CRA	YFISH HA	BITAT	SURVE	Y FOR	N			
Ostalament	146	Disco	0			Site (no.,			
Catchment	Wye Surveyor	River	Sgithwen			name) Grid ref.			6
Date (dd/mm/yy)	02/09/2015 s Flow norm	DR LW			Clarity,	(d/s end)	SO 0902 4	1048	
Weather, good 1, mod 2, poor 3	1, low 2, fall 1 3, rise 4		Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. & Location	Sg06						8	* and the	- 24
Site length (m)	100 Descript. (channel	1 &	. 4	18	<u>k</u> 4				
Width channel (m)	features,	1 &	4	1 5	& 4	N.	Page 1	Carlos and	and the second
	5 landuse) sample patch 1	sample pato		sample pat		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	18	<u>k</u> 4	1 8	<u> </u>	1 8	& 4
Details (if not standard)									
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)	0.2	0.2		0.4		0.3		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3	3		4		2		5	
Refuges in channel	tick all present in patch,main		ed in red	VEC		VEC		1/50	
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	VES	YES		YES		YES		YES	
other urban debris	15	150		TES		TES		TES	
tree roots, fine									
moss									
filamentous algae other submerged veg.									
emergents									
Main substrate beneath	VF0	VE0		VE0		VE0		1/50	
bedrock cobble (6.5-15cm)	YES	YES		YES		YES		YES	
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 tree roots, large	 								
vertical or undercut bank	YES	YES		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	2		0		0		0	
Search time (Mins)	10	10		5		10		5	
Bullhead present?		YES							
Evaluation crayfish habitat for whole site (o none, 1 pres, 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3 3	ey conditions, p	atches etc.):						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (all methods)	2								

		CRA	FISH H	ABITAT	SURVE	Y FOR	M			
							Site (no.,			_
Catchment	Wye	Surveyor	River	Sgithwen	1	1	name) Grid ref.			7
Date (dd/mm/yy)	02/09/2015	S 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	2	Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &	S~07						1 Nich	10-20		2
Location Site length (m)	Sg07 100	Descript. (channel features,	Wooded ba	inks with su	irrounding c	grazing.				the state of
Width channel (m)	3	landuse)	Access goo					220		And LAND
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pa	tch 3	sample pat	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5	18	4	18	k 4	18	& 4	18	& 4	18	\$4
Details (if not standard)	0.0		0.1		6.4		4.0		6.4	
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	3x2 2		3x4		5x1		4x3 3		5x1	
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	
Refuges in channel		in patch, mair	n type(s) search							
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)	123				123				TES	
woody debris	YES				YES					
other urban debris										
tree roots, fine										
moss filomontous place										
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	
Siltation none low	TES		TES		TES		TES		TES	
moderate										
high										
Refuges in bank none			VEC		VE0				VEO	
cobble/boulder tree roots, large	YES		YES YES		YES YES		YES		YES	
vertical or undercut bank										
dry stone wall										
other reinforced										
crayfish burrows	1.15.43.0.3									
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	7		0		3		1		2	
Search time (Mins)	10		5		10		10		10	
Bullhead present? Evaluation crayfish		Notoe (YES ey conditions, p	otober at the	YES	a enroint -	f mink or a	ttor under	YES	
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		y conditions, p							
Total crayfish (all methods)	13									

		CRA	YFISH HA	ABITAT	SURVE	Y FORI	M			
							Site (no.,			
Catchment	Wye	Surveyor	River	Sgithwen	1		name) Grid ref.			8
Date (dd/mm/yy)	03/09/2015	s	DR LW				(d/s end)	SO 0823 3	995	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4		Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &							N MA	16.	AL.	1-1-3-1P
Location Site length (m)	Sg08 100	Descript. (channel features,	Grazing with	h heavily w	ooded bank	s. Access				
Width channel (m)	4	landuse)	good via roa	¥				(Martine)	The Carlo	
Survey method, std 1, quad	sample patc	h 1	sample pato	ch 2	sample pat	tch 3	sample pat	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5	18	4	1 8	k 4	18	& 4	18	<u> </u>	1	& 4
Details (if not standard)										
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	<u>2x2</u> 3		2x4 3		3x2 3		5x1 1		2x2 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) Refuges in channel	4 tick all present	in natch main	5 type(s) search		4		3		3	
cobble (6.5-15cm)		in paten, main	YES		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)										
woody debris	YES						YES		YES	
other urban debris	1/50						VE0			
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			. 20		. 20		. 20		. 20	
moderate										
high										
Refuges in bank none										ļ
cobble/boulder			YES		YES		YES		VEC	
tree roots, large							YES		YES	
vertical or undercut bank										
dry stone wall other reinforced									-	
crayfish burrows				-						
Shading above	HEAVY		HEAVY	İ	HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per									-	
unit (depending on method) Search time (Mins)	3		2 10		0		25		0 5	
Bullhead present?	э YES		YES		5				TES D	
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3	Notes (surv	ey conditions, p	vatches etc.):	Mink spriant	t containing	g crayfish re	emains pres		hout.
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	7									
Total crayfish (all methods)	/	L								
Ostalassat	10/		Disco	0		Site (no.,		•		
--	---------------------	--	--	--------------------------------------	----------------	--------------	-----------------------	-----------------		
Catchment	Wye		River	Sgitt	nwen	name)		9		
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. &						-12/12/12	A MELL			
Location	Immediately dow	nstream of 1st 10	00m			A PAR		ENTIS OF STREET		
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)	Access - ro downstrean bedrock wa stoney area	adbrido n end. terfalls as.	Series of					
	sample patch 1		sample pate	ch 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	1 & 4		
Details (if not standard)		. 4	10.4		10.4	10	(4	1 & 4		
Extent (I x w										
patch) Channel (1	3x2		6x1		6x1	6x1		6x1		
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	natch main two	(c) coarchod i	in rod						
cobble (6.5-15cm)	YES	paten, main type	YES	Inteu	YES	YES		YES		
cobble (0.5 15cm) 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)										
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	1		1		1	1		1		

cobble (6.5-15cm)	YES		YES	YES	YES	YES
pebble (<6.5cm)						
gravel (<1.6cm)						
sand (<2mm)						
clay						
silt						
Siltation						
none			N/50	N/50	\/F0	
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						
crayiish burrows						
Shading above						
Shading above	LIGHT		LIGHT	LIGHT	LIGHT	LIGHT
Crayfish	LIGHT 0		LIGHT	LIGHT 0		
Crayfish manually Crayfish by trap					LIGHT	LIGH13
Crayfish manually Crayfish by trap Total crayfish				0 4		
Crayfish manually Crayfish by trap Total crayfish caught		Notes (survey o	0	0 4 7	0	
Crayfish manually Crayfish by trap Total crayfish caught Evaluation		Notes (survey o	0	0 4	0	
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0		Notes (survey o	0	0 4 7	0	
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2	0	Notes (survey o	0	0 4 7	0	
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	0 Score	Notes (survey o	0	0 4 7	0	
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	0 Score	Notes (survey o	0	0 4 7	0	
Crayfish 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	0 Score 3 3	Notes (survey o	0	0 4 7	0	
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 4 7	0	
Crayfish 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	0 Score 3 3	Notes (survey o	0	0 4 7	0	
Crayfish 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,	0 Score 3 3 1	Notes (survey o	0	0 4 7	0	
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 4 7	0	
Crayfish 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.	0 Score 3 3 1	Notes (survey o	0	0 4 7	0	
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 4 7	0	
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 4 7	0	
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 4 7	0	

			D .	0.11			Site (no.,		10
Catchment	Wye		River	Sgit	hwen		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								
Site length (m)	100								
Width channel (m)	3	Descript. (channel features, landuse)	Land use - a access via r	oad br	idge			er de de K	
Survey method,	sample patch 1		sample patc	h 2	sample pat	tch 3	sample patch 4		sample patch 5
still 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 &	Δ	1 & 4
Details (if not standard)	14	- т	104		104		10	7	144
Extent (I x w									
patch) Channel (1	5x1		7x2		7x2		5x2		7x1
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 proport in	notob main tuna	(a) accrahad i	n rod			I		
cobble (6.5-15cm)	tick all present in YES	i paton,main type	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) rubble (give size)	YES		YES		YES		YES		YES
woody debris	YES		YES		YES		YES		YES
other urban debris	120		120		120		120		
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

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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	
dry stone wall						
other reinforced						
crayfish burrows						
Shading above	MOD		HEAVY	MOD	HEAVY	HEAVY
v						
Crayfish manually	0		0	1	0	0
Crayfish manually				1	0	0
Crayfish manually Crayfish by trap Total crayfish				3	0	0
Crayfish manually Crayfish by trap Total crayfish caught		Notos (sunvov	0	3		0
Crayfish manually Crayfish by trap Total crayfish caught Evaluation		Notes (survey o		3		0
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0		Notes (survey o	0	3		0
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2	0	Notes (survey o	0	3		0
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	0 Score	Notes (survey o	0	3		0
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	0 Score 3	Notes (survey o	0	3		0
Crayfish 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	0 Score 3 3	Notes (survey o	0	3		0
Crayfish 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	0 Score 3 3 3 3	Notes (survey o	0	3		0
Crayfish 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	0 Score 3 3	Notes (survey o	0	3		0
Crayfish 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,	0 Score 3 3 3 3	Notes (survey o	0	3		
Crayfish 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	0 Score 3 3 3 3	Notes (survey o	0	3		
Crayfish 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,	0 Score 3 3 3 3	Notes (survey o	0	3		
Crayfish 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	0 Score 3 3 3 3	Notes (survey o	0	3		
Crayfish 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	0 Score 3 3 3 3	Notes (survey o	0	3		
Crayfish 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	0 Score 3 3 3 3	Notes (survey o	0	3		

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			5. orașe (2014)	Start and finish time	1100-1300	800 at 1
Photo ref. &						ALC: NO		Pearlan (
Location	In 1st 100m								
Site length (m)	100								
Width channel (m)	2.5	Descript. (channel features, landuse)	Land use - w roadbridge ir		nd. Access from 10				
· · ·	sample patch 1		sample patcl	h 2	sample patch 3	sample patch	4	sample patch 5	j
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4	1 &		1 & 4	
Details (if not standard)		T	144		144		7		
Extent (I x w patch)	2x2		4x2		3x2	8x1		10x1	
Channel (1 margins, 2 mid, 3 both, other									
specify)	1		1		2	2		3	
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	natch main type	(c) searched in	a rad					
cobble (6.5-15cm)	YES	paten,main type	YES	ncu	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	YES		YES		YES	YES		YES	
tree roots, fine									
moss									
filamentous algae									
other submerged veg.									
emergents									
Main substrate beneath									
bedrock cobble (6.5-15cm)	YES		YES		YES	YES		YES	
					. LO	120		1.20	

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pebble (<6.5cm)				1	1			
gravel (<1.6cm)								
sand (<2mm)								
clay								
silt								
Siltation none								
	YES		YES	YES		YES	YES	
low	TES		TES	TES	<u> </u>	TES	YES	
moderate								
high								
Refuges in bank none	YES		YES	1				
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				8				
Evaluation		Notes (survey	conditions, patches	etc.):Excellen	t habit	at		
crayfish habitat for whole site (0								
none, 1 pres., 2								
freq., 3 abund.)	Score							
in margins	3							
in mid channel								
	3							
in banks	3							
	2							
surveyability Problems								
surveyability Problems pollution 1,	2							
surveyability Problems pollution 1, erosion 2, (E if	2							
surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	2							
surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by	2							
surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note	2							
surveyability Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by	2							

						Site (no.,			
Catchment	Wye		River	Sgith	nwen	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. &	1						时间 是这		1. H
Location	Mid point of site						A Store		(FS)
Site length (m)	100	Descript. (channel features,	Land use - v	voodlai	nd and village.				
Width channel (m)	3	landuse)	Access via r	oadbrid			10 A 10		1.1.1.1
Survey method,	sample patch 1		sample patc	h 2	sample patch 3	sample patch	4	sample patch s	5
still stall	1 &	4	1&4		1 & 4	1 &	4	1 & 4	Ļ
Details (if not standard)									
Extent (I x w									
patch) Channel (1	3x2		4x2		6x2	5x1		3x1	
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		4	
Refuges in channel	tick all present in	notoh main tuna	(a) accrahad i	arad					
cobble (6.5-15cm)	YES	paten,main type	YES	neu	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		YES	
rubble (give size)	120		120		120	120			1
woody debris	YES		YES		YES	YES		YES	
other urban debris									
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)									

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
ondaning aborto	TIEAVI					
Crayfish						
Crayfish manually	0		0	0	0	0
Crayfish manually Crayfish by trap Total crayfish				0		
Crayfish manually Crayfish by trap			0	0 2 2		
Crayfish manually Crayfish by trap Total crayfish caught Evaluation		Notes (survey o		0 2 2		
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat		Notes (survey o	0	0 2 2		
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2		Notes (survey o	0	0 2 2		
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0		Notes (survey o	0	0 2 2		
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2	0	Notes (survey o	0	0 2 2		
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	0 Score	Notes (survey o	0	0 2 2		
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	0 Score	Notes (survey o	0	0 2 2		
Crayfish 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	0 Score 3 3	Notes (survey o	0	0 2 2		
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 2 2		
Crayfish 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,	0 Score 3 3 1	Notes (survey o	0	0 2 2		
Crayfish 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),	0 Score 3 3 1	Notes (survey o	0	0 2 2		
Crayfish 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.	0 Score 3 3 1	Notes (survey o	0	0 2 2		
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 2 2		
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 2 2		
Crayfish 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	0 Score 3 3 1	Notes (survey o	0	0 2 2		

			CRAYFISH		AT SURVET	FUN				
Catchment	Wye		River	Sgith	wen		Site (no., 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. &								Store West		
Location	Towards upstrea	m and of sita					ALT MAL	-	Contra - mat	
Site length (m)	100 1.5	Descript. (channel features, landuse)	Land use - g access. Easy	razing,	total stock	d.				
		14114400)					comple poteb	٨	comple pote	E
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	sample patch 1	4	sample patch	12	sample pa		sample patch		sample patch	
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	
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 typ		in red		1			1	1
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. emergents										
Main substrate beneath			1		I		1		1	
bedrock										
cobble (6.5-15cm)										

pebble (<6.5cm)						
gravel (<1.6cm)	YES		YES	YES	YES	YES
sand (<2mm)						
clay						
silt	-					
Siltation				• [I.	
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	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						
caught		Nistas (sumusu)	anditional matches a	4	the entreight shows all	except for the most upstream end
Evaluation crayfish habitat			more diversity of hab		atiy a straight channel e	except for the most upstream end
for whole site (0			,			
none, 1 pres., 2						
freq., 3 abund.)	Score					
in margins	3					
in mid channel	3					
in banks	2					
surveyability	1					
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)	4					

			CRATFISHIN		AT SURVEY FC					
Catchment	Wye		River	Sgith	wen		Site (no., name)		14	
Date (dd/mm/yy)	15/10/2014	Surveyors	DR LW				Grid ref.	SO 05720 3	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. &										AND DECK PARTY
Location	At 100 m betwee	n natches 1 and 3	, ,				All sections in	and the second second	A Contraction	
Site length (m)	100	Descript.		amua	rd and grazing.			T		A.
	45.05	(channel features,	Irish bridge 2. Good hat	betwee	en Patches 1 & roughout. Easy	ι		暴然	The Parallel	
Width channel (m)	1.5 - 2.5	landuse)	access thro			_		A CONTRACTOR OF CASE		
Survey method,	sample patch 1		sample pato	:h 2	sample patch	13	sample patch	4	sample patch	า 5
std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1 & 4		1 & 4		1 8	. Д	1 8	. 4
Details (if not standard)		7	- Tu +		104					
Extent (I x w patch)	6x4		8x2		5x1		5x1		5x1	
Channel (1 margins, 2 mid, 3 both, other 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	tiels ell encount in		(a) a a such a d :	ام م م						
channel cobble (6.5-15cm)	tick all present in YES	patch, main type	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			
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
sand (<2mm)						
clay						
silt	YES		YES			
Siltation					×/50	
none				YES	YES	YES
low	VEC		VEC			
moderate	YES		YES			
high Refuges in bank						
none	YES		YES			
cobble/boulder			YES			
tree roots, large			YES			
vertical or undercut bank			YES		YES	YES
dry stone wall						
other reinforced						
crayfish burrows						YES
Shading above	NONE		NONE	NONE	MOD	MOD
<u> </u>			NONE		-	
Crayfish						
Crayfish manually	6		7	2	1	1
Crayfish manually Crayfish by trap						1
Crayfish manually			7	2 37 54	1	
Crayfish manually Crayfish by trap Total crayfish caught Evaluation		Notes (survey c	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat		Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1	walking across riverbed
Crayfish manually Crayfish by trap Total crayfish caught Evaluation		Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0		Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2	6	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.)	6 Score	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish manually Crayfish by trap Total crayfish caught Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	6 Score 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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	6 Score 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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	6 Score 3 3 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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,	6 Score 3 3 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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),	6 Score 3 3 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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.	6 Score 3 3 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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	6 Score 3 3 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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	6 Score 3 3 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed
Crayfish 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	6 Score 3 3 3 3	Notes (survey c from Irish bridge	7	2 37 54 etc.):Good habitat	1 throughout. Six crayfish seen	walking across riverbed

Catchment	Wye		River	Sgith	wen	Site (no., name)		15
Date (dd/mm/yy)	15/10/2014	Surveyors	DR LW			Grid ref.	SO 05116 3	8682
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							
Site length (m) Width channel (m)	100	Descript. (channel features, landuse)		ess acro	and and grazing. ss field. Good t.			
	sample patch 1	•	sample pa	tch 2	sample patch 3	sample patch 4	Ļ	sample patch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	4	1&4	1	1 & 4	1 &	4	1 & 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)	0.2		0.2		0.3	0.2		0.2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5		2	3		5
Refuges in channel	tick all present in	natch main type(s) sparchod	in red				
cobble (6.5-15cm)	YES	paton,maintype(YES	iiiiiou	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	YES		YES					
moss								
filamentous algae other submerged								
veg.								
emergents Main substrate								
beneath			1					Ι
bedrock								
cobble (6.5-15cm)								

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	YES	YES	
tree roots, large	YES		YES					
vertical or undercut bank	YES		YES			YES	YES	
dry stone wall	163		TEO			163	TES	
other reinforced								
crayfish burrows								
Shading above	LOW		MOD		HEAVY	HEAVY	LOW	
Crayfish							-	
manually	3			2		2		
Crayfish by trap					12			
Total crayfish caught					19			
Evaluation		Notes (survey c	onditions, patch	nes e				
crayfish habitat			,		,			
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	3							
pollution 1,								
erosion 2, (E if								
>33% affected),								
aliens 3.								
Total crayfish (by	1	1						
1 method, note total(s) by other								
total(s) by other methods in notes								

Catchment	Mhro		River	Saith			Site (no.,		16	
Catchinent	Wye		Rivei	Sgith	Iwen		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. &									S. State	
Location	Pond								11月1	
Site length (m)	100	Descript. (channel	l and use -	forest	ry plus fore	stry				
	4.5	features,	store. Sma	II strea	im channel		A DE LA CARL			Sales and
Width channel (m)	1.5 sample patch 1	landuse)	adjacent p sample pa		sample pa	atch 3	sample patch	А	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 &	. 4	1 & 4		1 & 4		1 8			& 4
Details (if not standard)										
Extent (I x w										
patch) Channel (1	8x1		8x1		8x1		8x1		8x ⁻	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	2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		4		4		3			3
Refuges in channel	tick all present in	natch main type	s) searched	in red						
cobble (6.5-15cm)	YES		YES	inted	YES		YES		YES	
cobble (15- 25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-										
40cm) boulder (>40cm)	YES YES		YES YES		YES YES		YES YES		YES YES	
rubble (give size)			120		120		120			
woody debris	YES						YES			
other urban debris										
tree roots, fine										
moss										
filamentous algae other submerged					1					
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	N/50			V/F.0			¥50
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 crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	Score 3		onditions, patches upstream and down			er track, contains b	oulders and cobbles.
in mid channel	3		Part of the second			The strates	A CARLEN AND A STATE
in banks	1	and the second second	A AND AND AND AND AND AND AND AND AND AN	and the set		A STATE OF THE OWNER	and the second s
surveyability	3	CLASSING!	Man - I -	- Girly	1		
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.					a de la compañía		
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0	- 16. AB					

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

(Builti Koau)			FISH HA		SURVE	Y FOR	M			
Ostahurant	14/						Site (no.,			4
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	
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. &									See 1	- Ing I
Location	Dulas01							S. Roll		
Site length (m)	500						- AND			
	-	Descript. (channel features,	Grazing and		ljacent sew	age works				
Width channel (m)	sample patc	landuse) h 1	Access goo sample pate		sample pa	tch 3	sample pa	tch 4	sample pate	ch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5	18	4	18	4	1	& 4	18	§ 4	1&	4
Details (if not standard)										
Extent (I x w patch)	5x1		5x1		4x2		5x1	-	5x2	
Channel (1 margins, 2 mid, 3 both, other specify)	2		2		3		1		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)	5		5		4		5		4	
	tick all present	in patch, maii		ed 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		YES	
boulder (>40cm)			YES		YES		YES		YES	
rubble (give size)			0							
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)									YES	
gravel (<1.6cm)	YES		YES		YES		YES			
sand (<2mm)										
clay silt										
Siltation none	YES				YES		YES			
low			YES						YES	
moderate										
high										
Refuges in bank none	VEO		VEO		VEO		VEO		VEO	
cobble/boulder tree roots, large	YES		YES		YES YES		YES		YES YES	
					123				120	
vertical or undercut bank dry stone wall										
other reinforced										
crayfish burrows				-				5		
Shading above	MOD		HEAVY		MOD		HEAVY		MOD	
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)	0		0		0		0		0	
Bullhead present?	YES		5		YES		10		YES	
Evaluation crayfish		Notes (surv	L ey conditions, p	atches etc.):						
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									
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 HA	ΑΒΙΤΑΤ	SURVE	Y FOR	М			
Ostalassat	144		Diver	Dulas Dua		D	Site (no.,			0
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith R	oad)	name) Grid ref.			2
Date (dd/mm/yy)	29/08/2015	S 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		Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &	Dulas02						572		1 the	
Location Site length (m)	100	Descript. (channel features,	Urban, foot dog walking	, footbridge						
Width channel (m)	5 sample patc	landuse) h 1	grazing. Go 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)	18	. 4	18	x 4	10	\$4		<u></u> 84		& 4
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		n type(s) search							
cobble (6.5-15cm)			YES		YES		YES		YES	ļ
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)	120		120		120		120		120	
woody debris	YES				YES				YES	
other urban debris	YES		YES						YES	
tree roots, fine										
moss		-				-	-			
filamentous algae		-				-	1			
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)					YES					
gravel (<1.6cm)	YES		YES				YES		YES	
sand (<2mm)							1			
clay silt							-			
Siltation none	YES		YES				YES		YES	
low	0		. 20		YES					
moderate										
high										
Refuges in bank none										
cobble/boulder tree roots, large	VES		YES				YES		YES	
			123				123		120	
vertical or undercut bank dry stone wall	-						<u> </u>			
other reinforced				-			ł			
crayfish burrows										
Shading above	HEAVY		HEAVY		HEAVY		MOD		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		C	
Search time (Mins)	15		10		5		5		5	
Bullhead present?		<u> </u>			YES		YES			
Evaluation crayfish habitat for whole site (o 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 methods in	Score 3 3 3 3 3	Notes (surv	ey conditions, p	vatches etc.):I	∟arge bould	ers obscur	e water flov	v at some p	oints.	
notes if applicable)	0									

		CRA	YFISH HA	ΑΒΙΤΑΤ	SURVE	Y FOR	M			
Catabasat	Maria		Diver	Dulas Dra	alı (Duith D	a a d)	Site (no.,			0
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith R	bad)	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		Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. & Location	Dulas03						1	1.43	C. P.	2
Site length (m)	100	Descript. (channel features,	Wooded, ba roadbridger	-	-	Good		4		
Width channel (m)	4 sample patc	landuse) h 1	access. sample pate	h 2	sample pa	tch 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)	18	4	18	k 4	1 8	\$4	1 8	\$4	1	& 4
Extent (I x w patch)	1x3		4x1		3x2		2x2		4x2	,
Channel (1 margins, 2 mid, 3 both, other specify)	3		1		1		2 2		2	
Depth (metres)	0.2		0.2		0.2		0.2		0.2	2
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5		4		4		4	
Refuges in channel	tick all present	in patch, mair	n type(s) search	ned in red						
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)	120		120		120		120		120	
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) clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate										
high										
Refuges in bank none cobble/boulder	VES		YES		YES		YES		YES	
tree roots, large			YES		YES		120		120	
vertical or undercut bank				Ì	-		1			
dry stone wall					1		1	-		
other reinforced										
crayfish burrows										
Shading above Crayfish/10 refuges, or per	MOD		LIGHT		LIGHT		NONE		NONE	
unit (depending on method)	0		0		0		0		C)
Search time (Mins)	5		5		15		5		5	
Bullhead present?	YES		YES				YES		YES	
Evaluation crayfish habitat for whole site (o 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	INDIES (SUIM	ey conditions, p	atches etc.):						
note total(s) by other methods in notes if applicable)	0									

		CRA	YFISH H	ΑΒΙΤΑΤ	SURVE	Y FORI	М			
Catchment	Wwo		Pivor	Dulas Bro	ok (Ruith R	aad)	Site (no., name)			4
	Wye	Surveyor	River	Duias Bro	ok (Buith Ro	Dad)	Grid ref.			4
Date (dd/mm/yy)	30/08/2015	s Flow norm	DR LW			Clarity,	(d/s end)	SO 0293 5	5391	
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			
Photo ref. &	D 1 04							-11		1.1
Location Site length (m)	Dulas04 100									
		Descript. (channel features,	Urban, woo	odland, graz	ing, stock a	ICCESS.			ale?	
Width channel (m)		landuse)	Access by							The s
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pat	tch 3	sample pa	tch 4	sample pa	itch 5
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 &	4	18	& 4	1 8	k 4	1 8	& 4	1	& 4
	2x2		3x1		3x2		4x1		6x1	
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	3		3x1		3X2		4x1		1	
Depth (metres)	0.4		0.2		0.3		0.2	ĺ	0.2	
Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	3 tick all present	in natch mo!-	3 type(s) search		4		3		4	
cobble (6.5-15cm)		in patch,main	YES	ed in red	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							YES		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										
silt										
Siltation none							YES		YES	
	YES		YES		YES					
moderate										
high Refuges in bank none										
cobble/boulder	YES		YES		YES		YES	ŀ	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/10 refuges, or per										
unit (depending on method) Search time (Mins)	0		10	~	0		0		0 10	
Search time (Mins) Bullhead present?	10		10	<u> </u>	10		10		10 YES	<u> </u>
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3	Notes (surv	ey conditions, μ	batches 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									

		CRA	(FISH H <i>I</i>	ABITAT	SURVE	Y FORI	M			
Ostalassat	144		Diana	Dute Due		D	Site (no.,			-
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith Re	oad)	name) Grid ref.			5
Date (dd/mm/yy)	30/08/2015		DR LW			Clarity	(d/s end)	SO 0314 5	5439	
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. &									- Part	Color Late
Location Site length (m)	Dulas05 100	Descript. (channel	Woodland,	arazina Bi	iffer zone e	except at				
Width channel (m)	4	features, landuse)	some stock	• •		•	Street.		(main and a second seco	and the second s
	sample patc	h 1	sample pato	ch 2	sample par	tch 3	sample pa	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	18	4	18	k 4	18	& 4	18	& 4	18	& 4
Details (if not standard)										
Extent (I x w patch)	2x2		2x3		6x1		3x2		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	2		2/0		1		3		2	
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)	5		5		4		4		5	
Refuges in channel		in patch, mair	n type(s) search		4		4		. 5	
cobble (6.5-15cm)	YES	1	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 other urban debris	IES									
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										
silt										
Siltation none	YES		YES		YES		YES		YES	
low moderate										
high										
Refuges in bank none				İ						
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/10 refuges, or per										
unit (depending on method)	0		0		0		0		0	
Search time (Mins) Bullhead present?	5 YES		5 YES		10		5 YES		5 YES	
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score	Notes (surv	ey conditions, p	atches etc.):			123		123	
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 FOR	М			
Ostalassat	14/		Disco	Dulas Das		0	Site (no.,			0
Catchment		Surveyor	River	Dulas Bro	ok (Buith R	oad)	name) Grid ref.			6
Date (dd/mm/yy)	30/08/2015 s	S Flow norm	DR LW			Clarity,	(d/s end)	SO 0353 5	5500	
Weather, good 1, mod 2, poor 3	1	I, low 2, fall B, rise 4	1	Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. & Location	Dulas06								General .	See Y
Site length (m)	100	Descript. channel eatures,	Woodland s buffer zone	except at s				644		
Width channel (m)	3 sample patch	anduse) 1	point. Good sample pate		sample pa	tch 3	sample par	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	+	18	x 4	10	& 4	18	& 4	18	x 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	
Depth (metres)	0.3		0.2		0.3		0.3		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		2		4		3		3	
Refuges in channel	tick all present in	n patch, mair			· · · · ·					
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)			YES		YES		YES		YES	
rubble (give size) woody debris					YES					
other urban debris					120					
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)										
sand (<2mm)			YES		YES		YES		YES	
clay										
silt										
Siltation none										
	YES		YES		YES		YES		YES	
moderate high							<u> </u>			
Refuges in bank none	· · · ·			-			1			
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	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per					I IEAV Î		Π⊑ΑΥΪ		TIEAVŤ	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	10		5		10		5		10	
Bullhead present? Evaluation crayfish	YES		ey conditions, p			Į	1		I	
habitat for whole site (o 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 methods in	Score 3 3 3 3 3	ULOS (SUM	-y concitions, β	encones etc.).						
notes if applicable)	0					-	-			

		CRA	YFISH H	ABITAT	SURVE	Y FOR	M			
Catabraat	Marc		Divor	Dulas Bra	ok (Duith D	and)	Site (no.,			7
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith Ro	Dad)	name) Grid ref.			7
Date (dd/mm/yy)	31/08/2015	s 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		Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &							The.	AN ANY	A REAL PROPERTY	States -
Location Site length (m)	Dulas07 100	Descript. (channel features,	Gardens ro	•	back of outb	uildings.				
Width channel (m)	2 sample patc	landuse) h 1	Access goo sample pate		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)	18	4	18	k 4	18	& 4	18	& 4	1.6	& 4
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		in patch, mai	D n type(s) search		4				<u> </u>	
cobble (6.5-15cm)	YES	1	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										
other urban debris	YES		YES							
tree roots, fine										
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)										
sand (<2mm)										
clay										
Silterion			VEC		VEC		VEC		VEC	
Siltation none low	YES		YES		YES		YES		YES	
moderate					1		<u> </u>			
high										
Refuges in bank none	YES		YES		Ì		Ì			
cobble/boulder							YES		YES	
tree roots, large										
vertical or undercut bank							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		0		0		0		0	
Search time (Mins)	15		15		5		5		5	
Bullhead present?				<u> </u>	L		L	[[
Evaluation crayfish		Notes (surv	ey conditions, p	atches etc.):	Disintegrati	ng otter or	mink sprair	nt		
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									
Drahlama										
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 FOR	И			
			D .				Site (no.,			
Catchment	Wye	Surveyor	River	Dulas Bro	ok (Buith Re	oad)	name) Grid ref.			8
Date (dd/mm/yy)	31/08/2015		DR LW			e t 11	(d/s end)	SO 0441 :	5562	
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. &							R. WA	16.	A.	W SI
Location Site length (m) Width channel (m)	Dulas08 100	Descript. (channel features, landuse)	Grazing, ex	roosed ban	s Good ac	ccess.			a start	
	sample patc		sample pate	·	sample par		sample pa	tch 4	sample pa	atch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1&	4	18	<u> </u>	1 8	3 4	1 4	& 4	1	& 4
Details (if not standard)										
Extent (I x w patch)	5x1		5x1		3x1		3x1		3x ⁻	1
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	3
Depth (metres)	0.2		0.2		0.2		0.2		0.3	3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		5		4		3			5
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)	YES		YES		YES		YES		YES	
boulder (>40cm)						-				
rubble (give size) woody debris	YES									
other urban debris	125									
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)	125		120		125		125		120	
clay										
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate				-					<u> </u>	
high										
Refuges in bank none cobble/boulder			YES				YES		YES	
tree roots, large	YES		YES				YES		120	
vertical or undercut bank			-	1	1		-		t i	
dry stone wall				1				-	1	
other reinforced				İ				ĺ	t	
crayfish burrows										
Shading above	MOD		MOD		MOD		MOD		MOD	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0			b
Search time (Mins)	10		10	·	5		5	·	1(
Bullhead present?				<u> </u>	Ű		Ŭ			
Evaluation crayfish		Notes (surv	ey conditions, p	atches etc.):	Stock acces	ss is major	influence			
habitat for whole site (0										
none, 1 pres., 2 freq., 3 abund.)	Score									
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									

		CRA	YFISH H	ABITAT	SURVE	Y FOR	M			
Catchment	Wye		River	Dulas Bro	ok (Buith Ro	nad)	Site (no., name)			9
	,	Surveyor		Duias Di U		Jauj	Grid ref.	CO 0407 /		
Date (dd/mm/yy)	31/08/2015	Flow norm	DR LW	\A/etex		Clarity,	(d/s end)	SO 0487 5	576	
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. & Location	Dulas09						AN ST			NA
Site length (m)	<u>Dulaso9</u> 100									
		Descript. (channel features,	Grazing , h		access, bai	nk	A			
Width channel (m)	2 sample patc	landuse) h 1	erosion. Go		sample pat	tch 3	sample par	tch 4	sample pa	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1 8			<u> </u>	1 8			<u> </u>		& 4
Details (if not standard)	10			**		* *		**		
Extent (I x w patch)	3x1		4x1		2x3		2x2		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		2		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)	5		4	Ļ	4		4		5	
Refuges in channel	tick all present	in patch, mai		hed in red	1					
cobble (6.5-15cm)			YES		YES		YES YES		YES	-
cobble (15-25.6cm) boulder (25.6-40cm)			YES YES		YES YES		YES		YES YES	
boulder (20.0 40cm) boulder (>40cm)	120		120		120		120		120	
rubble (give size)										
woody debris			YES		YES					
other urban debris										
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)										
clay	YES		YES		YES		YES		YES	
silt										
Siltation none	YES		YES		YES		YES		YES	
moderate	120		120	1	120		120		120	
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 Crayfish/10 refuges, or per	MOD		MOD		MOD		MOD		MOD	
unit (depending on method)	0		0	1	0		0		0	
Search time (Mins)	10		10		5		5		5	
Bullhead present? Evaluation crayfish		Niet	L	<u> </u>						
habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 2 2 1 2	Notes (surv	ey conditions, p	Jaiches 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	(FISH HA		SURVE	Y FOR	M			
							Site (no.,			
Catchment	Wye	Surveyor	River	Dulas Broo	ok (Buith Re	oad)	name) Grid ref.			10
Date (dd/mm/yy)	31/08/2015	s	DR LW				(d/s end)	SO 0530 5	610	
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. &							6 33			XAL
Location Site length (m)	Dulas10 100	Descript. (channel features,								
Width channel (m)	2 sample patc	landuse) h 1	Land use: C		od access sample pa	tch 3	sample pat	tch 4	sample pa	tch 5
Survey method, std 1, quad										
2, net/kick 3, trap 4, view 5 Details (if not standard)	18	. 4	18	k 4	18	& 4	1 8	<u> </u>	1	& 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)	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	in patch, mair	n type(s) search	ed IN RED						
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)						-				
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	YES		YES		YES		YES		YES	
Siltation none										
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 Crayfish/10 refuges, or per	MOD		MOD		MOD		HEAVY		MOD	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	10		5		5		10		10	
Bullhead present?										
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion	Score 2 2 2 2 2	NOTES (surv	ey conditions, p	atches etc.): t	Entrance to	motocross	Site			
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 FOR	Λ			
							Site (no.,			
Catchment	Wye	rveyor	River	Dulas Bro	ok (Buith Ro	bad)	name) Grid ref.			11
Date (dd/mm/yy)	09/09/2015 s		DR LW			<u> </u>	(d/s end)	SO 0573 5	630	
Weather, good 1, mod 2, poor 3	1, lo	W norm ow 2, fall ise 4	1	Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &							in Gene			
Location Site length (m) Width channel (m)	(cha	script. annel ures,	Motocross	moior or oc	on Cood a					
	sample patch 1	luse)	Motocross, sample pate		sample pat		sample pat	ch 4	sample par	tch 5
Survey method, std 1, quad 2, net/kick 3, trap 4, view 5	1&4		1.8		1.8		1 8			<u> </u>
Details (if not standard)	10.7		10	x 1		* 1		* +		x -
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	
Peature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		3		4		4		4	
Refuges in channel	tick all present in pa	atch, mair		ned in red						
· · · · · · · · · · · · · · · · · · ·			YES		YES		YES		YES	
cobble (15-25.6cm) boulder (25.6-40cm)	YES YES		YES YES		YES YES		YES YES		YES YES	
boulder (>40cm)	120		TLO		125		125		TL0	
rubble (give size)										
woody debris			YES							
other urban debris										
tree roots, fine										
moss filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath										
bedrock					YES		YES		YES	
cobble (6.5-15cm) pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay	V/70									
silt Siltation none	YES		YES							
low			-	-						
moderate	YES		YES		YES		YES		YES	
high										
Refuges in bank none cobble/boulder	YES				YES		YES			
tree roots, large			YES						YES	
vertical or undercut bank										
dry stone wall										
other reinforced										
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) Bullhead present?	10		5		10		5		5	
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 1 1 0 3	tes (surv	ey conditions, p	batches etc.):	Erosion on	banks and	motocross	site. Tributa	ary has goo	od habitat
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	FISH H	ABITAT	SURVE	Y FOR	M			
							Site (no.,			
Catchment	Wye	Surveyor	River	Dulas Broo	ok (Buith R	oad)	name) Grid ref.			12
Date (dd/mm/yy)	01/09/2015		DR LW				(d/s end)	SO 0604 5	673	
Weather, good 1, mod 2, poor		Flow norm 1, low 2, fall		Water		Clarity, good 1, mod				
³ Photo ref. &		3, rise 4		temp. oC		2, poor 3				
Location										
Site length (m)										
		Descript. (channel	Whole 500							
Width channel (m)		features, landuse)	Main flow a arising fron			ributaries				
	sample patc		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										
Details (if not standard)										
Extent (I x w patch)										
Channel (1 margins, 2 mid, 3										
both, other specify)										
Depth (metres) Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle)										
Refuges in channel cobble (6.5-15cm)	tick all present	in patch, ring	main type(s) se	earched		-				
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										
crayfish burrows										
Shading above										
Crayfish/10 refuges, or per unit (depending on method)										
Search time (Mins)										
Bullhead present? Evaluation crayfish		Notoc (sur								
habitat for whole site (0		INDIES (SUIV	ey conditions, p	batches etc.).						
none, 1 pres., 2 freq., 3	0									
abund.) in margins	Score 0									
in mid channel	0									
in banks	0									
surveyability	0									
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)										

Catchme		•	CRAYFI	SH HAE	BITAT S	URVEY	FORM Site (no.,			
nt Date (dd/mm/y	Wye	Surveyor	River	Dulas Broo	ok (Buith R	oad)	name)			13
Weather,	01/09/2015	Sliveyor S	DR LW			Clority	Grid ref. (d/s end)			
poor 3 Photo ref.		1, low 2, fall 3, rise 4		Water temp. oC		Clarity, good 1, mod 2, poor 3				
& Location										
Site length (m)		Descript. (channel features,	Whole 500)m unsuitab	le for surve	ey due to				
Width cha Survey	nnel (m) sample patc	landuse) h 1	dry riverbe sample pat	ed tch 2	sample pa	tch 3	sample pa	tch 4	sample pat	tch 5
method, std 1, quad 2, net/kick 3, trap 4, view 5										
Details (if not standard)										
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify) Depth										
(metres)										
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)										
Refuges in										
channel cobble (6.5-	tick all present	in patch, ring	main type(s) s	earched						
15cm) cobble (15-										
25.6cm) boulder (25.6-										
40cm) boulder										
(>40cm) rubble (give										
size) woody debris										
other urban debris										
tree										
roots, fine moss filamento										
us algae other										
submerge d veg. emergent										
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 tree										
roots, large vertical or undercut bank										
dry stone wall										
other reinforce d crayfish										
Shading										
above Crayfish/ 10 refuges, or per unit (depending on method)										
Search time (Mins)										
Bullhead present?		Notes (sur-	ey conditions,	patches etc. \						
Evaluatio n crayfish habitat for whole site (0 none, 1			ay conditions.	patenes etc.)	-					
none, 1 pres., 2 freq., 3 abund.) in	Score									
margins in mid	0									
channel in banks surveyabil	0									
ity Problems pollution 1, erosion 2, (E if >33% affected), alliens 3. Total	0									
crayfish										
(by 1 method, note total(s) by other methods in notes if applicable)										

11.15. Appendix O: White-clawed crayfish habitat survey forms for Clyro Brook August 2016

		CRA	YFISH H/	ABITAT	SURVE	Y FOR				
Catchment	Wye		River	Clyro			Site (no., name)			
Date (dd/mm/yy)	24/08/2016	Surveyor	DR LW				Grid ref. (d/s end)	SO 232 45	4	
Weather, good 1, mod 2, poor	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. &	1	3, 1156 4	2	temp. 00	12	2, poor 3	50.20		8. J. C.	S
Location	Near conflu	ence	_					Start A	1235/3	19
Site length (m)	300	Descript. (channel features,	Massive am confluence Mud over a often not vis poaching th	unsuitable nkle level b sible under	for standard ut variety of	d survey . stones				
	sample patc	,	sample pate		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	1&4		1&4		1&4		1&4		1&4	
Details (if not standard)										
Extent (I x w patch)	4x1		5x4		4x1		2x2		2x1	
Channel (1 margins, 2 mid, 3										
both, other specify)	3		3		3		3		3	
Depth (metres)	0.2		0.3		0.3		0.2		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		3		3		2		3	
Refuges in channel			n type(s) search		3		2		3	
cobble (6.5-15cm)	uon an present	paton, mai	. ypo(3) sealtr							
cobble (15-25.6cm)	YES		YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)							YES			
rubble (give size)										
woody debris			YES						YES	
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)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay	YES		YES		YES		YES		YES	
silt										
Siltation none										
low										
moderate										
high	YES		YES		YES		YES		YES	
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/10 refuges, or per										
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	5		10		8		12		6	
Bullhead present?	YES	N - 1	YES		YES		YES		YES	
Evaluation crayfish			ey conditions, p		Difficult to					
habitat for whole site (0 none, 1 pres., 2 freq., 3		nna suitab	le patches to	survey						
abund.)	Score									
in margins	1									
in mid channel	1									
in banks	1									
surveyability	1									
Droblomo " "										
Problems pollution 1, erosion	Cilt dense''									
2, (E if >33% affected), aliens 3.	Silt deposition									

		CRA	YFISH HA	АВІТАТ	SURVE	Y FORI	M			
Catchment	Wye		River	Clyro			Site (no., name)			2
		Surveyor		Ciyru			Grid ref.			2
Date (dd/mm/yy)	24/08/2016	S Flow norm	DR LW			Clarity,	(d/s end)	SO 229 45	51	
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	2			
Photo ref. &							100			1 11 5 1
Location Site length (m)	Immediately	downstrea	m of 1st 100	m			1.00			
		Descript. (channel features,	Landuse, ag within thick							
Width channel (m)	3 sample pate	landuse) h 1	access. sample pate	h 2	sample pat	rch 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&4		1&4		1 & 4		1&4		1&4	ļ
Extent (I x w patch)	3x1		2x1		4x1		3x1		4x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	3
Depth (metres)	0.3		0.3		0.3		0.3		0.3	3
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		4		4	ı
Refuges in channel		in patch, ring	main type(s) se	arched						
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)			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)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay	YES		YES		YES		YES		YES	
silt										
Siltation none										
low moderate										
high	YES		YES		YES		YES		YES	
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/10 refuges, or per					I IEAV Î		TIEAVŤ			
unit (depending on method)	0		0		0		0		(
Search time (Mins)	6		8		6		6		6	6
Bullhead present? Evaluation crayfish	YES	Notos /			YES		YES	Į		
habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 1 1 1 1		ey conditions, p er through c							
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish	0									

		CRA	FISH H	ABITAT	SURVE		И			
Ostahasant	10/		Disco	01			Site (no.,			0
Catchment	Wye	Surveyor	River	Clyro	í		name) Grid ref.			3
Date (dd/mm/yy)	24/08/2016		DR LW			0	(d/s end)	SO 228 44	6	
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. &										1145
Location	Typical stret	ch in midd	le of site							
Site length (m)	500	Descript. (channel features,	hawthorn, a occasional land use - o	sed by den alder, willow stock scces cattle and sh	, hazel, ash ss. Heavy a	with		•	· · · · · · · · · · · · · · · · · · ·	
Width channel (m)	sample patc	landuse) h 1	grazing/poa sample pate		sample pat	tch 3	sample par	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		1		1&4		1&4	
Extent (I x w patch)	3x1		4x1		3x1		3x1		5x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	
Depth (metres)	0.2		0.1		0.1		0.2		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		5		4		4	
Refuges in channel	tick all present	in patch, ring			5		4		4	
cobble (6.5-15cm)		1	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										
other urban debris										
tree roots, fine	YES		YES		YES		YES		YES	
moss			-		-		-			
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath										
bedrock cobble (6.5-15cm)	YES		YES		YES		YES		YES	
pebble (<6.5cm)	TLO		TLO		TL5		TL5		TLS	
gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	VES		VEC		VEC		VEC		VEC	
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										
dry stone wall									ļ	
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) Bullhead present?	12		6	1	10		8		10	
Evaluation crayfish		Notes (sur	ey conditions, p	atches etc. \•	Difficult to					
habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 1 1 1 1		er through c							
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish	0									

		CRA	YFISH H/	ABITAT	SURVE	Y FOR	И			
Catahmant	Muc		Divor	Churo			Site (no.,			4
Catchment	Wye	Surveyor	River	Clyro			name) Grid ref.			4
Date (dd/mm/yy)	24/08/2016		DR LW			Clarity	(d/s end)	SO 224 44	3	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4		Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &	A. H I						and the second	-	S. S.	1. 12
Location	At roadbridg	e								
Site length (m)	500	Descript. (channel features,	Low slow flor roadbridge.			ybe by				
Width channel (m)	2	landuse)	sewage wor	· · · · · · · · · · · · · · · · · · ·				-	š	
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample par	tch 3	sample pa	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5 Details (if not standard)	1 & 4		1&4		1&4		1&4		1&4	
Extent (I x w patch)	4x2		4x2		5x1		5x1		4x1	
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)	3		3		4		4		4	
Refuges in channel	tick all present	in patch, ring								
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	
boulder (>40cm)	YES		YES							
rubble (give size) woody debris										
other urban debris										
tree roots, fine										
moss										
filamentous algae										
other submerged veg.	YES		YES							
emergents										
Main substrate beneath										
bedrock cobble (6.5-15cm)					YES					
pebble (<6.5cm)					IE3					
gravel (<1.6cm)	YES		YES				YES		YES	
sand (<2mm)	-						-		-	
clay										
silt										
Siltation none										
low moderate	VEC		YES		YES		YES		YES	
high	IES		150		TEO		TEO		TEO	
Refuges in bank none										
cobble/boulder tree roots, large										
	VES		VEC							
vertical or undercut bank dry stone wall	1E2		YES							
other reinforced										
crayfish burrows			t		1		1			
Shading above	MOD		MOD		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)										
Search time (Mins)	<u> </u>								<u> </u>	
Bullhead present?										
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks	Score 1 1 1	Notes (surv gates	ey conditions, p	patches etc.):	Difficult to a	access rive	r through c	anopy exce	ept at road a	and field
surveyability	1									
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	1 sewage?									
Total crayfish	0									
	0									

		CRA	FISH H	ABITAT	SURVE	Y FOR	M			
Catchment	Wye		River	Clyro			Site (no., name)			5
		Surveyor		Ciylo			Grid ref.	0.0 000 40		5
Date (dd/mm/yy)	23/08/2016	S Flow norm	DR LW			Clarity,	(d/s end)	SO 220 43	9	
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. & Location	At sowade y	vorke diech	arge				No star			At 1
Site length (m)	At sewage v	Descript.	Privately de large pond	and sewage	e works disc	charging				
Width channel (m)	1.5	features, landuse)	to the river the flood pla	•		to5 are in	NA D			the cast
	sample pato		sample pate		sample pat	ch 3	sample pa	tch 4	sample pat	tch 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)	104		10.4		10.4		104		10.4	
Extent (I x w patch)	4x1		4x1		2x1		2x1		5x1	
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)	3		3		3		3		3	
Refuges in channel	tick all present		main type(s) se							
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) rubble (give size)					YES					
woody debris										
other urban debris										
tree roots, fine	YES				YES		YES			
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)										
sand (<2mm)										
clay										
silt										
Siltation none										
low moderate	VEC	-	YES	-	YES		YES	-	YES	
high	IES		TEO		TEO		TEO		TES	
Refuges in bank none										
cobble/boulder	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/10 refuges, or per							TIEAVŤ			
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	6		8		10		6		14	
Evaluation crayfish habitat for whole site (o 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 1 1 1 1 1 sewage?	Notes (surv	Ley conditions, p	atches etc.):[Difficult to a	ccess river	through ca	anopy		
Total crayfish	0									

		CRA	(FISH H)	ΑΒΙΤΑΤ	SURVE	Y FOR	M			
		-	-				Site (no.,			
Catchment	Wye	Surveyor	River	Clyro			name) Grid ref.			6
Date (dd/mm/yy)	23/08/2016	s	DR LW				(d/s end)	SO 216 43	9	
Weather, good 1, mod 2, poor 3	1	Flow norm 1, low 2, fall 3, rise 4	2	Water temp. oC	13	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &									See at	
Location Site length (m)	Roadbridge 100	Descript. (channel								
Width channel (m)	з	features, landuse)	Land use - Appears go		bridges and	l urban.	. Singe	A STREET	1	
	sample patc		sample pate		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		1 & 4		1&4		1 & 4		1 & 4	
Details (if not standard)										
Extent (I x w patch)	3x2		3x3		5x1		2x2		3x4	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		1		3		3	
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)	5		5		3		3		4	
Refuges in channel	tick all present	in patch, mair		ned in red	1/50					
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 (23.0-40cm) boulder (>40cm)	YES		YES		YES		YES		YES	
rubble (give size)	YES		YES		YES		YES		YES	
			YES		YES		120		YES	
other urban debris			. 20		YES		YES			
tree roots, fine	YES		YES						YES	
moss										
filamentous algae										
other submerged veg.										
emergents	YES		YES		YES		YES		YES	
Main substrate beneath										
bedrock										
cobble (6.5-15cm)			VEO							
pebble (<6.5cm)	YES		YES				VEC		VES	
gravel (<1.6cm) sand (<2mm)					YES		YES		YES	
clay					163					
silt										
Siltation none	YES		YES		YES		YES		YES	
low										
moderate										
high										
Refuges in bank none							YES		VEC	
cobble/boulder					YES				YES	
tree roots, large										
vertical or undercut bank	YES				YES					
dry stone wall other reinforced										
crayfish burrows				-						
Shading above	MODERATE		HEAVY		HEAVY		LIGHT		NONE	
Crayfish/10 refuges, or per										
unit (depending on method)	0		0		1		0		0	
Search time (Mins)	12		6		11		12		5	
Bullhead present? Evaluation crayfish		Notoc /	ey conditions, p		1	od rooto				<u> </u>
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 2 2 2 2 2		y conditione, p							
2, (E if >33% affected), aliens 3. Total crayfish	1									

		CRA	FISH H		SURVE	Y FOR	M			
Catabrant	Marc		Pivor	Churo			Site (no.,			7
Catchment	Wye	Surveyor	River	Clyro			name) Grid ref.			/
Date (dd/mm/yy)	23/08/2016	S Flow norm	DR LW		-	Clarity,	(d/s end)	SO 211 44	0	
Weather, good 1, mod 2, poor	1	1, low 2, fall 3, rise 4	2	Water temp. oC	13	good 1, mod 2, poor 3	1			
Photo ref. &		0, 1130 4		temp. 00	10	2, 000 0				1
Location	Footpath bri	dge								
								and the second	1.1.1	
									The second	
Site length (m)	100						- TOTA			
									- a-	
		Descript.	Land use -	woodland	Good habita	at although	-	the Williams		11
		(channel features,	some chan			•				
Width channel (m)		landuse)	remaining (1 Las	C. Andrew
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pa	tch 3	sample pa	tch 4	sample pat	tch 5
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 mid, 3	5x2		5x2		8x2		5x1		4x1	
both, other specify)	3		3		3		3		3	
Depth (metres)	0.2		0.2		0.2		0.4		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5		4		2		3	
Refuges in channel	-	in patch, mai	n type(s) search	÷	4		2		3	
cobble (6.5-15cm)	YES		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)	_		_							
woody debris							YES			
other urban debris tree roots, fine										
moss							YES			
filamentous algae	YES					-				
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					
cobble/boulder										
tree roots, large			VEC				VEO		VEC	
vertical or undercut bank dry stone wall			YES		<u> </u>		YES		YES	
other reinforced							YES		YES	
crayfish burrows										
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	10		8		0		6	·	14	
Search time (Mins) Bullhead present?	10		6		6		10		10	
Evaluation crayfish		Notes (surv	ey conditions, p	atches etc.):	Easy to sea	arch large :	areas. habi	tat in cracks	and crevio	ces in the
habitat for whole site (0		bedrock. E	Banks very u	ndercut in	places prov	iding excel	lent habitat			
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 cravifich										
Total crayfish	38	1		-			-			
		CRA	(FISH H/	ABITAT	SURVE	Y FORI	M			
--	--------------	--	----------------	-------------------	--------------	--------------------------------------	--------------------	------------	--------------	------------
Ostalassat	14/		Diana	01			Site (no.,			
Catchment	Wye	Surveyor	River	Clyro	1		name) Grid ref.			8
Date (dd/mm/yy)	23/08/2016	s Flow norm	DR LW			Clarity	(d/s end)	SO 206 44	1	
Weather, good 1, mod 2, poor 3	1	FIOW norm 1, low 2, fall 3, rise 4	2	Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &							and the second			No the
Location Site length (m)	Typical sect	Descript. (channel	00m							
Width channel (m)	3	features, landuse)	Land use -	woodland.			198	A.F. M		A-L
Survey method, std 1, quad	sample patc	<u>h 1</u>	sample pate	ch 2	sample pat	tch 3	sample pa	tch 4	sample pa	atch 5
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)	5x2		4x2		4x2		5x2		3x2	2
Channel (1 margins, 2 mid, 3 both, other specify)	3		2		2		3		2	
Depth (metres)	0.2		0.2		0.3		0.2		0.2	
Feature (1 marg. d'water, 2			-							
pool, 3 glide, 4 run, 5 riffle)	3	in not the st	2	8	3		3		4	l .
Refuges in channel cobble (6.5-15cm)		m patch, mair	type(s) search	iea 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)										
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										
silt										
Siltation none	YES		YES		YES		YES		YES	
low moderate										
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/10 refuges, or per										
unit (depending on method)	7		3		0		5		1	
Search time (mins) Bullhead present?	5		10		5		10		5	
Evaluation crayfish		Many cray	/fish ranging	from iuven	iles to matu	re adults t	ver did not	extend the	width of the	e riverbed
habitat for whole site (0			ere no refug			ro adaito, t				o monocu
none, 1 pres., 2 freq., 3							an li	and a	CHARLES S	
abund.)	Score						Contraction of the	1 MP	200	10
in margins in mid channel	3							and the	A Star	
in hanks	3						S.S.	100		Pa
surveyability	3						P.S.	R. S.	1 Ch	17
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.									aller .	RC1
Total crayfish	16							5-20		

		CRA	YFISH H	ABITAT	SURVE	Y FOR	M			
Catabrant	Wye		River	Churo			Site (no.,			9
Catchment		Surveyor		Clyro			name) Grid ref.			9
Date (dd/mm/yy)	22/08/2016	S Flow norm	DR LW			Clarity,	(d/s end)	SO 202 44	10	
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. &									199	et and
Location	Typical habi	tat at down	stream end	of site					A CARL	and in
Site length (m)	100								a	
		Descript. (channel features,	Land use w	oodland an	d farmland.	Good				
Width channel (m)	3	landuse)	habitat, sm				1 455		1 19	All and and
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample par	tch 3	sample pa	tch 4	sample pa	atch 5
2, net/kick 3, trap 4, view 5	1&4		1&4		1&4		1&4		1&4	
Details (if not standard)								1		
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	3x2 3		3x4 3		2x4 3		2x2 3		5x2	3
Depth (metres)	0.3		0.3		0.3		0.3		0.3	
Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	2 tick all present	in natch ring	2 main type(s) se	4	2		5		5	
cobble (6.5-15cm)	YES	in paten, nng	YES	archeu	YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)			YES		YES					
rubble (give size) woody debris							YES		YES	
other urban debris							123		125	
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	
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				YES	
dry stone wall other reinforced										
crayfish burrows			1				1		1	
Shading above	MOD		MOD		HEAVY		HEAVY		MOD	
Crayfish/10 refuges, or per unit (depending on method)	2		1		0		0		(
Search time (Mins)	8		12		8		12		9	
Bullhead present?										
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3	Notes (surv	ey conditions, p	batches etc.):						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish	3				-	-	-			

		CRA	FISH H	ABITAT	SURVE	Y FORI	M			
Ostahasaat	14/		Diana	01			Site (no.,			10
Catchment	Wye	Surveyor	River	Clyro			name) Grid ref.			10
Date (dd/mm/yy)	22/08/2016	S Flow norm	DR, LW			Clarity,	(d/s end)	SO198442		
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	NONE	Water temp. oC		good 1, mod 2, poor 3				
Photo ref. &							Call 1	19.19	0	-
Location	one of many	dry sectio	ns							
Site length (m)	500	Descript. (channel features,	Channel dr			r places	A			
Width channel (m)	2 sample patc	landuse)	has pools a sample pate		ow. sample pat	toh 2	sample pa	toh 4	sample pa	tob 5
Survey method, std 1, quad				JII Z		0113		1011 4		
2, net/kick 3, trap 4, view 5 Details (if not standard)	1&4		1&4		1&4		1&4		1&4	
Extent (I x w patch)	2x1		3x1		2x1		2x1		2x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	
Depth (metres)	0.1		0.1		0.1		0.1		0.1	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	2		3		2		3		3	
Refuges in channel	tick all present	in patch, ring	main type(s) se							
cobble (6.5-15cm)	YES		YES		YES		YES		YES	ļ
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES				YES	
boulder (>40cm)										
rubble (give size) woody debris	Vec				Yes		Yes			
other urban debris	163				163		163			
tree roots, fine										
moss	Yes		Yes							
filamentous algae	103		103							
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										
low										
moderate high										
Refuges in bank none										
cobble/boulder										
tree roots, large										
vertical or undercut bank				Ì				Ì		
dry stone wall										
other reinforced					1					
crayfish burrows										
Shading above	MOD		MOD		MOD		MOD		MOD	
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)	5		5		5		5		5	
Bullhead present?	5		5		5		5		5	
Evaluation crayfish		Notes (sum	ey conditions, p	atches etc.)*	Searched a	and tranner	pools	<u>.</u>	1	
habitat for whole site (0			.,							
none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins	1									
in mid channel	1									
in banks	1									
surveyability	3									
Problems pollution 1, erosion										
2, (E if >33% affected), aliens 3.	drys out									
Total aroufish										
Total crayfish	0	l			-			-		

Weather, pool 1, mod 2, laws First as the 2 laws Water Classes 2000 r01 & Spinel read-with very low flow Image 2 laws 1 Site length (m) 100 Descript, laws Image 2 laws Image 2 laws Site length (m) 100 Descript, laws Image 2 laws Image 2 laws Image 2 laws Width channel (m) 100 Descript, laws Image 2 laws			CRA	(FISH H)	ABITAT	SURVE	Y FOR	M			
Date (ddimm)y) 2003016 Streeyer Processing DR, LV Git or of Streeyer Streeyer Streeyer <thstreeyer< th=""> <thstreeyer< th=""> <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Site (no.,</th><th></th><th></th><th></th></th<></thstreeyer<></thstreeyer<>								Site (no.,			
Weather, pool 1, mod 2, laws First as the 2 laws Water Classes 2000 r01 & Spinel read-with very low flow Image 2 laws 1 Site length (m) 100 Descript, laws Image 2 laws Image 2 laws Site length (m) 100 Descript, laws Image 2 laws Image 2 laws Image 2 laws Width channel (m) 100 Descript, laws Image 2 laws	Catchment	Wye	Surveyor	River	Clyro						11
Weather Description Description Description Description Site length (m) 100 Description Image: Site length (m) 100 Site length (m) 100 Description Search site sta	Date (dd/mm/yy)	22/03/2016		DR, LW			Clarity	(d/s end)	SO192445	5	
Location typical reach with very low flow Site length (m) 100 Descript, it was in the second of t	Weather, good 1, mod 2, poor 3	1	1, low 2, fall	2			good 1, mod	1			
Site length (m) 100 Utdth channel (m) 1 1 1 <td>Photo ref. &</td> <td>t</td> <td></td> <td>I</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A Lena</td> <td>and a</td>	Photo ref. &	t		I						A Lena	and a
With channel (n) Issues: Issues: Nervost Alloy de setter de servoje patch 3 Sample patch 4 sample patch 5 Strates Alloy de setter de servoje patch 2 Servoje patch 3 Servoje patch 4 Servoje patch 5 Dataliti (frint servoje Dataliti (frint servoje) 1 1 1 1 1 Dataliti (frint servoje) 0.1 0.1 0.1 0.1 0.1 0.1 Dataliti (frint servoje) 0.1 0.1 0.1 0.1 0.1 0.1 0.1 Dataliti (frint servoje) 0.1 <td>Location Site length (m)</td> <td></td> <td>Descript.</td> <td>low flow</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Location Site length (m)		Descript.	low flow							
sample patch 1 sample patch 2 sample patch 3 sample patch 4 sample patch 5 sample patch 1 t 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Width channel (m)	1	features,	Almost dry	stroom bod	too challou	v for tropp		N. The		Stat-
2. method: S. mpd 4. wey 5 1 </th <th></th> <th>sample patc</th> <th>,</th> <th></th> <th></th> <th></th> <th></th> <th>sample pa</th> <th>tch 4</th> <th>sample pa</th> <th>tch 5</th>		sample patc	,					sample pa	tch 4	sample pa	tch 5
Details (if not standard) 3X1 3X1 <td>Survey method, std 1, quad 2, net/kick 3, trap 4, view 5</td> <td></td>	Survey method, std 1, quad 2, net/kick 3, trap 4, view 5										
Chamel (i maging, 2 and 3 or 1 or 1 or 1 or 1 or 1 or 1 or 1 or					I.						
both. there specify 0.1 0.1 0.1 0.1 0.1 FeBULP (transp. transp. 2) 0.1 0.1 0.1 0.1 0.1 0.1 Refuges in channel oxbble (5.6.5 from boulder (5.45 cm is all all and all arread in patch, mg main type(s) seeched is all all all and all all arread in patch, mg main type(s) seeched is all all all all all all all all all al	Extent (I x w patch)	3X1		3X1		3X1		3X1		3X1	
Feädurg (r mang, dwater, 2) 4 4 4 4 Refuges in channel ocbble (56-15cm) bit all present in patch, ring main type(s) searched image: channel ocbble (56-15cm) image: channel ocbble (56-15cm) Doubler (15-26.6 mc) image: channel ocbble (56-6 mc) image: channel ocbble (56-6 mc) image: channel ocbble (56-6 mc) Noody debris image: channel ocbble (56-15cm) image: channel ocbble (56-15cm) image: channel ocbble (56-15cm) Itamentous algae other submerged veg. image: channel ocbble (66.5-15cm) image: channel ocbble (66.5-15cm) gravel (c16cm) image: channel ocbble (66.5-15cm) image: channel ocbble (66.5-15cm) gravel (c16cm) image: channel ocbble (c16.5-15cm) image: channel ocbble (c16.5-15cm) gravel (c16.5-15cm) image: channel ocbble (c16.5-15cm) image: channel ocbble (c16.5-15cm) gravel (c16.5-15cm) image: channel ocbble (c16.5-15cm) image: channel ocbble (c16.5-15cm) gravel (c16.5-15cm) image: channel ocbbl	Channel (1 margins, 2 mid, 3 both, other specify)										
appol. 3 gins, 4 m. 5. min) 4<	Depth (metres)	0.1		0.1		0.1		0.1		0.1	
cobble (6.5-15-cm)	Peature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4	<u> </u>	4		4	
cobble (15-25.6m)	Refuges in channel	tick all present	in patch, ring	main type(s) se	earched						
boulder (26.6-40cm)		-									
nubble (give size)	· · · · · · · · · · · · · · · · · · ·										
woody debris	boulder (>40cm)										
other urban debris											
tree roots, fine mose in in in in filamentous algae in in in in other submerged veg. in in in in Main substrate beneath bedrock in in in in Obble (6.6.5n5m) in in in in gravel (<1.6cm)											
moss moss ofter submerged veg.											
other submerged veg.	· · · · · · · · · · · · · · · · · · ·										
emergents		-									
Main substrate beneath bedrock cobble (6.5-15cm Image: Complexity of the second se											
cobble (6.5-15cm)	Main substrate beneath										
pebble (<6.5 cm)	bedrock										
gravel (<1.6 cm)	· · · · · · · · · · · · · · · · · · ·	-									
sand (<2mm)											
clay											
Siltation none low	· · · ·										
Iow Iow moderate high high indicate high indicate Refuges in bank none indicate cobble/boulder indicate tree roots, large indicate vertical or undercut bank indicate dry stone wall indicate other reinforced indicate crayfish burrows indicate Shading above indicate Crayfish/to retuges, or per unit (depending on methol) indicate Search time (Mins) indicate Bullhead present? indicate Evaluation crayfish habitat for whole site (on one, 1 pres, 2 treq., 3 abund.) indicate in margins 0 in margins 0 one, 1, press, 2 treq., 3 abund.) indicate surveyability 3 Problems pollution 1, erosion 2 2, (E if >33% affected), aliens 3. indicate											
moderate high image: constraint of the second											
Refuges in bank none											
cobble/boulder	¥										
tree roots, large	Refuges in bank none										
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 (o none, 1 pres, 2 freq. 3 abund.) in margins 0 in mid channel in banks 0 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3											
dry stone wall	, 0										
other reinforced											
Shading above Crayfish/10 refuges, or per unit (depending on method) Search time (Mins) Image: Constraint of the second seco	other reinforced										
Crayfish/10 refuges, or per unit (depending on method)											
unit (depending on method) Search time (Mins) Bullhead present? Evaluation crayfish habitat for whole site (o none, 1 pres, 2 freq., 3 abund.) in margins in margins in margins D in banks D surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	Shading above Crayfish/10 refuges, or per										
Bullhead present? Image: constraint of the state o	unit (depending on method)										
Evaluation crayfish habitat for whole site (o none, 1 pres, 2 freq., 3 abund.) This site has been scored at zero because it probably dries out regularly (as was found in the 2003 survey) Score 0 in margins in margins 0 in banks 0 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. 3											
habitat for whole site (point survey) sourcey survey) abund.) Score in margins 0 in mid channel 0 in banks 0 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	Evaluation crayfish		This site h	as been sco	red at zero	because it	probablv d	ries out rec	ularly (as v	vas found i	n the 2003
in margins 0 in mid channel 0 in banks 0 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	habitat for whole site (0 none, 1 pres., 2 freq., 3	0									
in mid Channel 0 in banks 0 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.											
in banks 0 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	in mid channel										
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.	in banks	0									
2, (E if >33% affected), aliens 3.	surveyability	3									
Total crayfish 0	Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
	Total crayfish	0									

		CRA	FISH H	ABITAT	SURVE		N			
Ostahasant	14/1-1-		Diana	01			Site (no.,			10
Catchment	Wye	Surveyor	River	Clyro			name) Grid ref.			12
Date (dd/mm/yy)	22/03/2016	S Flow norm	DR, LW		_	Clarity,	(d/s end)	SO189449)	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	None	Water temp. oC	N/A	good 1, mod 2, poor 3				
Photo ref. &	م سام ا ما م	tina							12	De Car
Location Site length (m)	typical dry s	Descript. (channel features,								
Width channel (m)	comple note	landuse)	Dry stream			tab 2		toh 4		tob E
Survey method, std 1, quad	sample pato	<u>n 1</u>	sample pate	sn z	sample pa	ICN 3	sample pa	ICN 4	sample pa	ich 5
2, net/kick 3, trap 4, view 5										
Details (if not standard)										
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)										
Depth (metres) Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	tick all present	in patch, ring	main type(s) se	earched						
cobble (6.5-15cm)			,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
cobble (15-25.6cm) boulder (25.6-40cm)										
boulder (25.6-40cm) boulder (>40cm)	-									
rubble (give size)										
woody debris	-									
other urban debris tree roots, fine					ł – – –					
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	-									
Siltation none low										
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				İ	1	İ		İ	1	
unit (depending on method) Search time (Mins)										
Bullhead present?										
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score	Notes (surv	ey conditions, p	patches etc.):						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.										
Total crayfish										

		CRA	YFISH H	ABITAT	SURVE	EY FOR	М			
			D :	0			Site (no.,			
Catchment	Wye	Surveyor	River	Clyro			name) Grid ref.	-		13
Date (dd/mm/yy)	22/03/2016	s Flow norm	DR, LW			Clarity,	(d/s end)	SO192454	1	
Weather, good 1, mod 2, poor		1, low 2, fall		Water		good 1, mod				
³ Photo ref. &	1	3, rise 4	None	temp. oC	_	2, poor 3	APPEND OF	the second	AN PURCH	1
Location	Dry pond at	t headwater					1.	A states		
							Sal to		W. C.	1000
							S. UKSK		1	- Andrews
Site length (m)										14 - 14
									(AL)	12
		Descript.					1371		A CALL	
		(channel features,							Constant of the	Note !
Width channel (m)	sample pato	landuse)	Dry pond sample pa	tch 2	sample pa	atch 3	sample pa	tch /	sample pat	tch 5
Survey method, std 1, quad	oumpio puic									0110
2, net/kick 3, trap 4, view 5 Details (if not standard)										
Extent (I x w patch)										
Channel (1 margins, 2 mid, 3										
both, other specify)										
Depth (metres) Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle)										
Refuges in channel cobble (6.5-15cm)	tick all present	in patch, ring	main type(s) s	searched						
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								ļ		
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										
crayfish burrows Shading above										
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)			ł – – –	-						
Bullhead present?										
Evaluation crayfish		Notes (surv	ey conditions,	patches etc.):						
habitat for whole site (0 none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins in mid channel										
in banks		1								
surveyability		4								
Problems pollution 1, erosion										
2, (E if >33% affected), aliens 3.		-								
Total cravfish	1	1								

11.16. Appendix P: White-clawed crayfish habitat survey forms for Afon Llynfi, September 2016

		CRA	(FISH H)	ABITAT	SURVE	Y FORI	M			
Catabrant	Wive		River	Lluofi			Site (no.,			1
Catchment	Wye	Surveyor	River	Llynfi			name) Grid ref.			1
Date (dd/mm/yy)	16/09/2016		DR LW				(d/s end)	SO 17858	38841	
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. &							1		1	
Location	Typical stret	ch							S Part 1	1 1 2 7
Site length (m)	300	Descript. (channel features,	Land use - access. Ea eroded ban flow with oc	rth banks a ks in places	nd mud sha s. Slow not	llows with noticable			No. of the second secon	
Width channel (m)		landuse)	pools.	1.0				1. OK		
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pat	ch 3	sample pa	tch 4	sample pa	itch 5
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)	4x1		2x3		3x3		4x3		4x1	
Channel (1 margins, 2 mid, 3			-		-		-			
both, other specify)	1		2		3		3		1	
Depth (metres)	0.5		0.7	ļ	0.4		0.5		1	ļ
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5		5		4		2	
Refuges in channel	tick all present	in patch,main								
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	
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	YES		YES		YES		YES		YES	
silt										
Siltation none										
	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	light		light		NONE		light		book	
Crayfish/10 refuges, or per	light		light				light		heavy	
unit (depending on method)	0		0		0		0		C	
Search time (Mins)	8		8		10		5		13	
Bullhead present?										A PROPERTY OF
Evaluation crayfish			ey conditions, p			photo is	Mrs K	1 PR	155 ×10.4	
habitat for whole site (0		example of	f eroded bar	nk in Patch	5		122	1. 17	A	40.0
none, 1 pres., 2 freq., 3 abund.)	Score						3		A Stall	1 and
in margins	2						and the	and the second	1 1 M	13.3
in mid channel	2								-	
in banks	1							and the second second		A Street
surveyability	2									and the
							Ser.			
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.							Sec.	And A	Sec. 1	
Total crayfish (by 1 method,							Er	oded sectio	n of bank	
note total(s) by other methods in notes if applicable)	0									

		CRA	FISH H	ΑΒΙΤΑΤ	SURVE	Y FOR	M			
Catabasat	10/110		Diver	Lhunfi			Site (no.,			2
Catchment	Wye	Surveyor	River	Llynfi			name) Grid ref.			2
Date (dd/mm/yy)	16/09/2016	s Flow norm	DR LW			Clarity,	(d/s end)	SO 17553	38814	
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. &							4	The second second		.ter
Location	Immediately	downstrea	m of 1st 100)m						and and
Site length (m)	300									
		Descript. (channel features,	Land use - throughout. some erosi	Earth bank	s up to 2m	high,		1. A. A. A. A. A. A. A. A. A. A. A. A. A.		
Width channel (m)		landuse)	(see photo)			-				
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pat	ich 3	sample par	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5	1&4		1&4		1&4		1&4		1&4	
Details (if not standard)				1						r
Extent (I x w patch)	4x2		4x2		5x4		3x3		3x2	
Channel (1 margins, 2 mid, 3 both, other specify)	1		3		3		3		1	
Depth (metres)	0.4		0.3		0.3		0.4		0.4	
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, mair								
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) rubble (give size)										
woody debris	YES						YES		YES	
other urban debris	120						TLO		120	
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)	1/50		V/50		1/50		1/50		1/50	
clay silt	YES		YES		YES		YES		YES	
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		YES		YES		YES	
vertical or undercut bank										
dry stone wall										
other reinforced										
crayfish burrows										
Shading above Crayfish/10 refuges, or per	LIGHT		HEAVY		MOD		LIGHT		MOD	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	10		6	5	10		10		10	
Bullhead present?										
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 2 2 1 2	NOIES (surv	ey conditions, p	batches etc.):						
Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. Total crayfish (by 1 method, note total(s) by other methods in	2									
notes if applicable)	0	1								

		CRA	YFISH H	ABITAT	SURVE	Y FORI	M			
Catchment	Wye		River	Llynfi			Site (no., name)			3
		Surveyor		Цутт			Grid ref.	00.40040	07400	
Date (dd/mm/yy)	16/09/2016	S Flow norm	DR LW			Clarity,	(d/s end)	SO 16646	37100	
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. &						1	5 . C.		A ST	
Location	Immediately	downstrea	m of 1st 100)m				A.	St. 3	
							the case			
							all a second		1. 新聞	
Site length (m)	100								2.8	
									4	19 9 3
		Descript. (channel							- Rest	
Width channel (m)	4	features, landuse)	Land use - pools and r		grazing. Se	ries of				
	sample patc		sample pate		sample pat	ch 3	sample pa	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5	1 & 4		1 & 4		1&4		1&4		1&4	
Details (if not standard)				4						
Extent (I x w patch)	4x1		4x1		3x2		7x2		4x1	
Channel (1 margins, 2 mid, 3 both, other specify)	1		1		3		3		1	
Depth (metres)	0.2		0.4		0.5		0.2		0.3	
Feature (1 marg. d'water, 2										
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	4 tick all present	in patch, mai	3 n type(s) search	1	2		3		2	
cobble (6.5-15cm)	YES	in paton, mai	YES		YES		YES		YES	
cobble (15-25.6cm)			YES	-	YES		YES		YES	
boulder (25.6-40cm) boulder (>40cm)	YES		YES				YES		YES	
rubble (give size)										
woody debris other urban debris	YES				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	YES		YES		YES		YES		YES	
silt Siltation none	YES		YES		YES		YES		YES	
Siltation none low	TES		163		TE3		163		TE3	
moderate										
high Refuges in bank none										
cobble/boulder	YES		YES				YES		YES	
tree roots, large										
vertical or undercut bank dry stone wall										
other reinforced										
crayfish burrows			MOD				MOD			
Shading above Crayfish/10 refuges, or per	NONE		MOD		LIGHT		MOD		LIGHT	
unit (depending on method)	0		0		0		0		0	
Search time (Mins) Bullhead present?	10		10		6		6		8	
Evaluation crayfish		Notes (surv	ey conditions, p	patches etc.):						
habitat for whole site (0 none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins 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									

Catchment Wye Built Wye Built Wye Site (mo.) (mo.) Date (ddirmmiyy) 1400/2016 DR LW Catch (mo.) Catch (mo.) Weather (post 1, mol 2, cor) 13.8.2 bit Watter (mol 2, cor) Catch (mo.) Catch (mo.) Catch (mo.) Site (mo.) 13.8.2 bit Watter (mol 2, cor) Catch (mo.) Catch			CRA	FISH H	ABITAT	SURVE		N			
Date (dstrmmy/y) 16(0x2016) SUMMOV Provide Childry Vestifier, goal 1, most 2, poor 31 Few road Width of and 1, poor 31 Childry, whether 1, poor 12, poor 31 Childry, whether 1, poor 32, poor 31 Childry, whether 1, poor 32, poor 31 Childry, whether 1, poor 32, poor 31 Childry, whether 1, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 32, poor 33, poor 34, p				D .							
Date Identifying 1 100/2016 DRLW Image 1 Image 2 50 17553 38314 Vialation: gast 1, mol 2, soot 1, mol 2, mol	Catchment	Wye	Surveyor	River	Llynfi						4
Weather Liver, 2 is Liver, 2 is Weather Liver, 2 is , 2="" is<="" th=""> <thliv< td=""><td>Date (dd/mm/yy)</td><td>16/09/2016</td><td></td><td>DR LW</td><td></td><td></td><td>0</td><td></td><td>SO 17553</td><td>38814</td><td></td></thliv<></thliver,>	Date (dd/mm/yy)	16/09/2016		DR LW			0		SO 17553	38814	
Location From roadbridge Site length (m) 100 Descript Barrier vectors Vector the served set of the served and served bridge Site length (m) 100 Descript Barrier vectors Vector to serve the set of the served and the served and the served and the served and the served set of the served vectors Vector to served the set of the served vectors to serve the served vectors Vector to serve the set of the served vectors to serve the served vectors Vector to serve the set of the served vectors Vector to serve the set of the served vectors Vector to serve the set of the served vectors Vector to serve the set of the served vectors Vector to serve the set of the served vectors Vector to serve the set of the served vectors Vector to serve the set of the served vectors Vector to serve the set of the serve to se	Weather, good 1, mod 2, poor 3	1	1, low 2, fall	1		12	good 1, mod	1			
Site length (m) 100 Uidth channel (m) 5 lanses Survey method; sail 1 quad wooddred. Eavy access via road bridge Survey method; sail 1 quad 18.4 Detail (m) 18.4 Detail (m) 5.2 Survey method; sail 1 quad 18.4 Detail (m) 5.2 Same X, lips, via (m) 5.2 Detail (m) 5.2 Same X, lips, via (m) 5.2 Detail (m) 5.2 Same X, lips, via (m) 2 Charmel (m) 0.2 Obdie (15.5cm) 5 Same X, lips, via (m) 2 Obdie (15.25cm) YES VES YES Noble (15.25cm) YES VES YES Noble (15.25cm) YES State X, lips, via (m) YES Noble (15.25cm) YES YES<								an Albert		State of the second	S. S. P.
Width channel (m) Environme patch 1 sample patch 2 sample patch 3 sample patch 4 sample patch 5 Survey method, aid, spat 1 4 1 8.4 1			Descript. (channel								
Sample patch 1 sample patch 2 sample patch 3 sample patch 4 sample patch 5 Zunstanki A, ture 5 18.4 18.4 18.4 18.4 18.4 18.4 Details (in standard) 502 502 601 3xtl 4xtl Educti x standard) 502 502 601 3xtl 4xtl Depth network 5 5 5 4 5 Standard (marge draft) 5 5 5 4 5 Standard (marge draft) 5 5 5 4 5 Cobble (15-25.6m) YES YES YES YES YES YES Doubter (25-440cm) YES	Width channel (m)	5							N.		Sec.
2. netrolic 3. tupe 4. seves 1 8.4 1 8.4 1 8.4 1 8.4 1 8.4 1 8.4 Details first distance) 502 502 604 3x1 4x1 Edent (1 warpace) 502 502 604 3x1 4x1 Statistics and the second 502 0.2 0.2 0.2 0.2 Depth marg desire, 2 5 5 4 5 Refluxe (1 mang desire, 2 5 5 4 5 Refluxe (1 mang desire, 2 5 5 4 5 Refluxe (1 mang desire, 2 5 5 4 5 Refluxe (1 mang desire, 2 5 5 4 5 Refluxe (1 mang desire, 2 5 5 4 5 Cobble (5.5-15cm) VES VES VES VES VES Doubter (26.6-40cm) VES VES VES VES VES VES VES VES VES VES VES VES VES VES <								sample pa	tch 4	sample pa	tch 5
Details if ner standard) Format Start St		1&4		1 & 4		1 & 4		1 & 4		1 & 4	
Educt () a u patch) 502 502 601 301 411 Charnel () mage, 2 md, 3 2 2 2 3 3 Depth mage sware, 2 pat, 3 (de, 4 mb, 6 mb) 0.2 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>											
Channel (I margins 2 mi. 3 b) 2 2 3 3 Depth names) 0.2 0.2 0.2 0.2 0.2 0.2 bedt, adms 4 min 5 min) 5 5 5 4 5 cobble (6.5-15 cm) YES		5/2		5x2		6x1		3x1		4x1	
Feakure (r marg. atvalue, 2 ood, 3 gind, 4 m, 5 me) 5 5 4 5 Refuges in channel cobble (6,5-15cm) VES ""><td>Channel (1 margins, 2 mid, 3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Channel (1 margins, 2 mid, 3										
pack_3 pling, 4 nm, 5 mlm, 5 5 4 5 Refuges in Channel cobble (6.5-15cm) YES		0.2		0.2		0.2		0.2		0.2	
Refuges in channel tex all present in patch, main type(s) searched in red cobble (6-15cm) YES YES YES YES boulder (25-64cm) YES YES YES YES boulder (2-40cm) YES YES YES YES vebole (give size) YES YES YES YES other urban debris YES YES YES YES inter urban debris YES YES YES other urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban debris YES YES YES inter urban Urban Urban Urban <td></td> <td>5</td> <td></td> <td>5</td> <td></td> <td>F</td> <td></td> <td>Α</td> <td></td> <td>5</td> <td></td>		5		5		F		Α		5	
cobble (6.5-15cm) YES		-	in patch, mair	_		5					
boulder (25.6-40cm) YES YES YES YES YES YES woody debris YES YES YES YES YES YES woody debris YES YES YES YES YES YES other urban debris YES YES YES YES YES YES other urban debris YES YES YES YES YES YES other submerged veg.			,, mai			YES		YES			
boulder (>40 cm) rubble (give size) woody debris YES vertice roots, fine ree roots, fine ree roots, fine mos other submerged veg. emergents Main substrate beneath bedrock cobble (6.5-15cm) gravel (<1.6cm) gravel (<1.6cm) gravel (<1.6cm) gravel (<1.6cm) yES VES YES YES YES YES YES YES YES Y	cobble (15-25.6cm)	YES		YES		YES		YES		YES	
rubble (give size) woody debris YES YES YES YES other urban debris YES YES YES YES tree roots, fine Image: State	boulder (25.6-40cm)	YES		-		-		-		-	
woody deris YES ""><td>· · · ·</td><td>YES</td><td></td><td>YES</td><td></td><td>YES</td><td></td><td>YES</td><td></td><td>YES</td><td></td></th<>	· · · ·	YES		YES		YES		YES		YES	
other urban debris tree roots, fine moss YES YES YES YES filamentous algae other submerged veg, emergents		V/F.0									
tree roots, fine moss moss filamentous algae image other submerged veg. image Main substrate beneath image Bain substrate beneath image gravel (c1.6cm) image gravel (c1.6cm) image gravel (c1.6cm) image silt image											
moss other submerged veg. moss emergents Main substrate beneath image: submerged veg. bedrock image: submerged veg. cobble (6.5-15cm) image: submerged veg. gravel (<1.6cm)		TES		TES		TES		TES		TES	
filamentous algae other submerged veg.	,										
other submerged veg.											
Main substrate beneath bedrock cobble (6.5-15cm) Image: state of the state o											
bedrock cobble (6.5-15cm) cobble (-6.5 cm) cobble (-6.5 cm) gravel (<1.6 cm)											
cobble (6.5-15cm)	Main substrate beneath										
pebble (<6.5cm) YES YES YES YES YES sand (<2.0cm)											
gravel (<1.6cm) YES YES YES YES YES YES sint	· · · · · · · · · · · · · · · · · · ·										
sand (<2mm)		VEC		VEC		VEC		VEC		VES	
clay silt clay silt clay silt clay silt clay silt clay silt Siltation none low moderate high YES YES YES Refuges in bank none cobble/boulder YES YES YES YES YES YES YES vertical or undercut bank dry stone wall other reinforced crayfish burrows YES YES Shading above crayfish burrows UGHT MOD Shading above unit (depending on method) Search time (Mins) 8 7 Bulhead present? 0 0 0 Evaluation crayfish habitat for whole site (o none, 1 pres, 2 freq, 3 abund.) Notes (survey conditions, patches etc.):Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.		TES		TES		TES		TES		TES	
silt YES YES YES YES Normalization Normalization Normalization Normalization Normalization Refuges in bank none Image: Comparison of the second seco	· · · · ·										
low											
moderate high moderate moderate Refuges in bank none VE YES YES cobble/boulder YES YES YES tree roots, large Vertical or undercut bank Vertical or undercut bank Vertical or undercut bank dry stone wall Vertical or undercut bank Vertical or undercut bank Vertical or undercut bank Shading above LIGHT MOD LIGHT HEAVY Crayfish burrows Vertical or undercut bank Vertical or undercut bank Vertical or undercut bank Shading above LIGHT MOD LIGHT HEAVY Crayfish burrows Vertical or undercut bank Vertical or undercut bank Vertical or undercut bank Shading above LIGHT MOD LIGHT HEAVY LIGHT Crayfish/10 refuges, or per unit (depending on method) 0 0 0 0 0 Search time (Mins) 8 7 8 5 6 Bullhead present? Vertex (survey conditions, patches etc.):Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings noar, 1 pres, 2 freq., 3 3 3	Siltation none	YES		YES		YES		YES		YES	
high Image: second	low										
Refuges in bank none cobble/boulder tree roots, large YES YES YES YES vertical or undercut bank dry stone wall											
cobble/boulder YES										VEC	
tree roots, large		VEG		VES		VES		VES		TES	
vertical or undercut bank dry stone wall other reinforced crayfish burrows YES Image: Constraint of the state of		153		IES		153		153			
dry stone wall	, 0										
other reinforced crayfish burrows YES Image: Crayfish burrows Shading above Crayfish/10 retuges, or per unit (depending on method) LIGHT MOD LIGHT HEAVY LIGHT Crayfish/10 retuges, or per unit (depending on method) 0 0 0 0 0 Search time (Mins) 8 7 8 5 6 Bullhead present? Image: Comparison of the state (or none, 1 pres, 2 freq, 3 abund.) Notes (survey conditions, patches etc.):Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings in margins 3 in mid channel 3 in banks in banks 3 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. A		<u> </u>								<u> </u>	
crayfish burrows LIGHT MOD LIGHT HEAVY LIGHT Crayfish/10 refuges, or per unit (depending on method) 0 0 0 0 0 Search time (Mins) 8 7 8 5 6 Bullhead present? Evaluation crayfish habitat for whole site (o none, 1 pres, 2 freq., 3 abund.) Notes (survey conditions, patches etc.): Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings in margins 3 in mid channel 3 in banks 3 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3.		-		YES					-	-	
Crayfish/10 refuges, or per unit (depending on method) 0 0 0 0 0 0 Search time (Mins) 8 7 8 5 6 Bullhead present? 6 Evaluation crayfish habitat for whole site (o none, 1 pres, 2 freq., 3 abund.) Notes (survey conditions, patches etc.):Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings in margins 3 in mid channel 3 in banks 3 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. A A				-				1			
unit (depending on method) 0 0 0 0 0 Search time (Mins) 8 7 8 5 6 Bullhead present? Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) Notes (survey conditions, patches etc.):Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings in margins 3 in banks 3 surveyability 3 Problems pollution 1, erosion 2, (E if >33% affected), aliens 3. A		LIGHT		MOD		LIGHT		HEAVY		LIGHT	
Search time (Mins) 8 7 8 5 6 Bullhead present? Image: Second state of the second state of t		0		0		0		0			
Bullhead present? Notes (survey conditions, patches etc.):Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings abund.) Score in margins 3 in banks 3 surveyability 3 Problems pollution 1, erosion 2. 2, (E if >33% affected), aliens 3.											
Evaluation crayfish Notes (survey conditions, patches etc.):Patch 3 under road bridge. Fresh otter spraint containing fish bones but no crayfish remains and heron droppings none, 1 pres, 2 freq., 3 abund.) Score in margins 3 in banks 3 surveyability 3 Problems pollution 1, erosion 2.		0		,				5			
TOLAL CLAY INTEL (by 1 method, note total(s) by other methods in	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,	3 3 3						dge. Fresh	otter sprain	nt containir	ng fish

		CRA	FISH H/	ABITAT	SURVE	Y FORI	М			
Catchment	Wye		River	Llynfi			Site (no., name)			5
Date (dd/mm/yy)	15/09/2016	Surveyor	DR LW	Liyim	Î		Grid ref. (d/s end)	SO 15033	34706	
Weather, good 1, mod 2, poor		Flow norm 1, low 2, fall 3, rise 4		Water temp. oC	12	Clarity, good 1, mod 2, poor 3			0.1100	
Photo ref. &	1	3, fise 4		temp. oc	12	2, poor 3		610 C		
Location Site length (m)	Middle of sit	e near road	dbridge							
		Descript. (channel features,	Land use - walkers, urb	oan. Looks	like an exce	ellent				
Width channel (m)	10 sample patc	landuse) h 1	habitat for o		ter pass , se sample pat		sample pa	tch 4	sample pat	ch 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)						I				
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	5x1 1		4x2 1		4x1 1		4x3 3		3x3 3	
Depth (metres)	0.3		0.4		0.4		0.3		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	2		2		3		3		3	
Refuges in channel		in patch, mair	n type(s) search		3		3		3	
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm) boulder (25.6-40cm)			YES		YES		YES		YES	
boulder (25.6-40cm) boulder (>40cm)			YES YES		YES 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										
cobble (6.5-15cm) pebble (<6.5cm)			YES		YES		YES		YES	
gravel (<1.6cm)	YES						YES		YES	
sand (<2mm)	0								. 20	
clay	YES		YES		YES		YES		YES	
silt	V=0		1/50		V=0		1/50		V=0	
Siltation none low	YES		YES		YES		YES		YES	
moderate			1		1		1			
high										
Refuges in bank none										
cobble/boulder tree roots, large	VES		YES YES		YES		YES YES		YES	
vertical or undercut bank	IES						163		153	
dry stone wall			YES		YES					
other reinforced	· · · · · ·				1		1			
crayfish burrows										
Shading above Crayfish/10 refuges, or per	LIGHT		LIGHT		HEAVY		MOD		LIGHT	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	10		9		6		8		11	
Bullhead present? Evaluation crayfish		Natas :			Dhata : f		ما معاد م	المتعاد		
habitat for whole site (o 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	atches etc.):		ter pass un	der the roa			
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						ar an			

		CRA	FISH H	ABITAT	SURVE	Y FORI	M			
Ostahanant	14/		Diana				Site (no.,			0
Catchment	Wye	Surveyor	River				name) Grid ref.			6
Date (dd/mm/yy)	15/09/2016		DR LW			0	(d/s end)	SO 14824	32914	
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. &							Million .	2.1 1		- Aleren
Location	Downstream	of roadbri	dge					V/AR	10 1 1 - 20	
Site length (m)	100	Descript.	Land use -				Ĵ			
		features,	river, good	crayfish ha	bitat imrove	ed by				
Width channel (m)	3 sample patc	landuse)	fencing off. sample pate	h 2	sample pat	tob 2	sample pa	tob 4	sample pa	tob 5
Survey method, std 1, quad	sample paid	11 1	Sample paid) <u> </u>	sample par	0113	sample pa	1011 4	sample pa	
2, net/kick 3, trap 4, view 5	1&4		1&4		1&4		1&4		1&4	
Details (if not standard)				r				r		
Extent (I x w patch)	2X1		5X1		3X3		4X2		4X2	
Channel (1 margins, 2 mid, 3 both, other specify)	1		1		3		3		3	
Depth (metres)	0.3		0.3		0.3		0.3		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		2		5		3		3	
Refuges in channel		in patch mair	∠ h type(s) search		5		3		3	
cobble (6.5-15cm)		in paten, mair	YES	icu in ted	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)										
woody debris	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)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)	VEC		VEC		VEC		VEC		VEC	
clay	YES		YES		YES		YES		YES	
silt Siltation none										
	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	HEAVY		HEAVY		MOD		HEAVY		HEAVY	
Crayfish/10 refuges, or per										
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	5		8		10		6		10	
Bullhead present? Evaluation crayfish		Notoc /	ey conditions, p				l			[
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		y conditions, p							
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 FOR	И			
Catchment	Wye		River	Llynfi			Site (no., name)			7
	S	urveyor		Liynin			Grid ref.			1
Date (dd/mm/yy)	15/09/2016 s F	low norm	DR LW			Clarity,	(d/s end)	SO 14398	33041	
Weather, good 1, mod 2, poor 3		low 2, fall rise 4	1	Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &	Immodiately d	ownetroo	m of 1ct 100)~			Part Part	Laiser.		
Location Site length (m)		ownstrea							- 	
Width channel (m)		atures, nduse)	Land use - habitat look	•	•	e garden,		544		
	sample patch		sample pate	<u> </u>	sample pat	tch 3	sample par	tch 4	sample pat	ch 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)	1x4		3x2		4x1		5x2		4x2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		2		1		3		2	
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		2		3		2		2	
Refuges in channel	tick all present in	patch, mair	1	ned in red						
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	
boulder (20.0 40cm) boulder (>40cm)			YES		YES		YES		YES	
rubble (give size)										
woody debris			YES		YES		YES		YES	
other urban debris							V/50		V/F0	
tree roots, fine moss							YES		YES	
filamentous algae										
other submerged veg.										
emergents	YES									
Main substrate beneath										
bedrock cobble (6.5-15cm)										
pebble (<6.5cm)						-				
gravel (<1.6cm)										
sand (<2mm)										
clay	YES		YES		YES		YES		YES	
silt Siltation none	YES		YES		YES		YES		YES	
low	TES		TE3		TE3		TE3		TES	
moderate										
high										
Refuges in bank none cobble/boulder				ļ						
tree roots, large					YES		YES		YES	
vertical or undercut bank					YES		YES		YES	
dry stone wall										
other reinforced					-		-			
crayfish burrows										
Shading above Crayfish/10 refuges, or per	MODERATE		HEAVY		HEAVY		HEAVY		HEAVY	
unit (depending on method)	0		0		0		0		0	
Search time (Mins) Bullhead present?	10		8		10		10		10	
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3 3	lotes (surve	ey conditions, p	batches 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									

		CRA	FISH H	ABITAT	SURVE	Y FORI	M			
Catabraat	Mura		Divor				Site (no.,			0
Catchment	Wye	Surveyor	River				name) Grid ref.			8
Date (dd/mm/yy) Weather, good 1, mod 2, poor	15/09/2016	Flow norm 1, low 2, fall	DR LW	Water		Clarity, good 1, mod	(d/s end)	SO 14022	32206	
3 Photo ref. &	1	3, rise 4	1	temp. oC	12	2, poor 3	1			
Location	Near Bridge	near Trefe	ca						10 1	
Site length (m)	100	Descript. (channel	Land use -	woodland.	River runs t	nrough				
Width channel (m)	4	features, landuse)	steep valley	. Slow flow	. Earth bank	s.	Self-		No ma	6 6
Survey method, std 1, quad	sample patc	h 1	sample pate	ch 2	sample pat	ch 3	sample pa	tch 4	sample pat	tch 5
2, net/kick 3, trap 4, view 5	1&4		1&4		1 & 4		1&4		1&4	
Details (if not standard)			-				-	1		
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	<u>2x3</u> 3		<u>3x2</u> 3		4x1 1		6X1		2x2 3	
Depth (metres)	0.3		0.3		0.3		0.3		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		4		4		4		4	
Refuges in channel	4 tick all present	in patch, mair			4		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)	TES		YES		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)										
pebble (<6.5cm) gravel (<1.6cm)	YES		YES		YES		YES		YES	
sand (<2mm)	120		120		120		120		120	
clay										
silt										
Siltation none low	YES		YES		YES		YES		YES	
moderate										
high										
Refuges in bank none										
cobble/boulder	VES		VEC	ļ	VEC		VEC		VEC	
tree roots, large			YES		YES		YES		YES	
vertical or undercut bank dry stone wall			YES		-		YES		YES	
other reinforced										
crayfish burrows										
Shading above Crayfish/10 refuges, or per	MOD		HEAVY	ļ	MOD		MOD		HEAVY	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	6		12		8		8		12	
Bullhead present? Evaluation crayfish		Net		<u> </u>						
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		ey conditions, p	arches etc.).						
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 FOR	M			
Ostahasant	10/		Diana	L b and C			Site (no.,			0
Catchment	Wye	Surveyor	River	Llynfi	Î	[name) Grid ref.	-		9
Date (dd/mm/yy)	14/09/2016		DR LW				(d/s end)	SO 13386	30702	
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. &							Seat 1	the second		
Location	Mid site									
Site length (m)	100	Descript.	Land use -	grazing, wo	oded banks	s with				
		features,	surround la			•				
Width channel (m)	4 sample pate	landuse) h 1	would be example pate		sample pat		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&4	[1&4	<u> </u>	1&4	l
•	3.0		422		202		Evd		202	
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	<u>3x2</u> 3		4X2		3x2 3		5x1 1		2x2 3	
Depth (metres)	0.3		0.3		0.3		0.3		0.3	
Feature (1 marg. d'water, 2	4		0		4				4	
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	4 tick all present	in patch, mair	2 n type(s) search		4		4		4	
cobble (6.5-15cm)		in paton, mai	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	YES		YES						YES	
other urban debris	120		120						120	
tree roots, fine	YES		YES		YES		YES		YES	
moss										
filamentous algae	YES		YES		YES		YES		YES	
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										
tree roots, large	YES		YES	ļ	YES		YES	ļ	YES	
vertical or undercut bank			YES		YES		YES		YES	
dry stone wall				ļ	YES			ļ		
other reinforced crayfish burrows										
Shading above	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)	0		0		0		0 10		0 10	
Bullhead present?			13		YES		YES		10	
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 3 3 3 3	Notes (surv	ey conditions, p	batches 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									

		CRA	FISH H	ABITAT	SURVE	Y FORI	И			
			-				Site (no.,			
Catchment	Wye	Surveyor	River	Llynfi	1		name) Grid ref.			10
Date (dd/mm/yy)	14/09/2016		DR LW			Clarity	(d/s end)	SO 13001	30323	
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. &							Star Star	He Str		
Location Site length (m)	Immediately	downstrea	<u>m of 1st 100</u>)m						
		Descript. (channel features,	Land use -		and grazing	J. Appears	-		1242 4	
Width channel (m)	4	landuse)	good habita			tob 2		tob 4	aampla pa	tob E
Survey method, std 1, quad	sample patc	nı	sample pate	n z	sample pat	ich 3	sample pa	ICH 4	sample pa	lich S
2, net/kick 3, trap 4, view 5	1 & 4		1&4	<u> </u>	1 & 4		1&4		1&4	<u> </u>
Details (if not standard)										
Extent (I x w patch) Channel (1 margins, 2 mid, 3 both, other specify)	<u>3x2</u> 2		<u>2x2</u> 3		2x2 3		<u>3x2</u> 2		<u>3x2</u> 3	
Depth (metres)	0.3		0.2		0.3		0.3		0.3	
Feature (1 marg. d'water, 2			-							
pool, 3 glide, 4 run, 5 riffle) Refuges in channel	5 tick all present	in natch moi-	5 type(s) search		2		2		3	
cobble (6.5-15cm)		ni paten, mali	YES	icu in teu	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	VES				YES				YES	
other urban debris	120				120				120	
tree roots, fine										
moss	YES		YES				YES		YES	
filamentous algae										
other submerged veg. emergents										
Main substrate beneath										
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)										
gravel (<1.6cm) sand (<2mm)										
	YES		YES		YES		YES		YES	
silt										
Siltation none	YES		YES		YES		YES		YES	
low moderate										
high										
Refuges in bank none							YES			
cobble/boulder	YES		YES		VEO					
tree roots, large			VEC		YES				VEC	
vertical or undercut bank dry stone wall			YES						YES	
other reinforced										
crayfish burrows	-									
Shading above Crayfish/10 refuges, or per	HEAVY		HEAVY		MOD		HEAVY		HEAVY	
unit (depending on method)	0		0		0		0		0	
Search time (Mins)	7		10		12		6		10	
Bullhead present? Evaluation crayfish		Nata c :	ey conditions, p	<u> </u>					YES	
habitat for whole site (o 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		y conditions, p	archios etc. j.						
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									

		CRA	(FISH H <i>I</i>	BITAT	SURVE	Y FOR	М			
							Site (no.,			
Catchment	Wye	Surveyor	River	Llynfi			name) Grid ref.			11
Date (dd/mm/yy)	14/09/2016	s	DR LW				(d/s end)	SO 12683	29971	
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. &								1. 3. 3.4	ALL	- Sector
Location	Footbridge r	near disuse	ed railway							
Site length (m)	100	Descript. (channel features,	Land use - v bedrock riff side.Riffles,	les with s S	teep banks	on either			J	1
Width channel (m)		landuse)	No intensive				CARE SA		10 an	
Survey method, std 1, quad	sample patc	h 1	sample pato	:n 2	sample pat	ich 3	sample pa	tch 4	sample pa	tch 5
2, net/kick 3, trap 4, view 5 Details (if not standard)	1&4		1&4		1&4		1&4		1&4	
Extent (I x w patch)	4x3		2x2		5x1		3x2		4x3	
Channel (1 margins, 2 mid, 3 both, other specify)	3		2		1		3		3	
Depth (metres)	0.3		0.2		0.3		0.3		0.3	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		4		2		2		4	
Refuges in channel		in patch. mair	n type(s) search	ed in red	۷		2			
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)	YES		YES		YES		YES		YES	
rubble (give size) woody debris					YES		YES			
other urban debris					TE3		TES			
tree roots, fine										
moss										
filamentous algae										
other submerged veg.										
emergents										
Main substrate beneath	1/50		1/50		1/50		1/50		V/50	
bedrock cobble (6.5-15cm)	YES		YES		YES		YES		YES	
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm)										
clay										
silt										
Siltation none	1/50		1/50		1/50		1/50		VE0	
iow moderate	YES		YES		YES		YES		YES	
high	L									
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			
dry stone wall										
other reinforced										<u> </u>
crayfish burrows Shading above	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per							. IE/N V I			
unit (depending on method)	0		0		0		0		0	-
Search time (Mins)	10 VES		10		8		8		10	
Bullhead present? Evaluation crayfish	YES	Notes (sur	YES ey conditions, p	atches etc.)*	YES Good acce	ss from we	st hank via	footnath	YES	l
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		,	,						
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	ΑΒΙΤΑΤ	SURVE	Y FOR	M			
Ostahasant	144		Diver	L h an G			Site (no.,			40
Catchment	Wye	Surveyor	River	Llynfi		1	name) Grid ref.			12
Date (dd/mm/yy)	14/09/2016	s Flow norm	DR LW			o	(d/s end)	SO 12868	29130	
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	1	Water temp. oC	12	Clarity, good 1, mod 2, poor 3	1			
Photo ref. &								AL IN	A AN	
Location Site length (m)	Immediately	Descript. (channel	m of 1st 100	grazing, wo						
Width channel (m)	4	features, landuse)	bridge	0anp. 0000		omroad				SPECTOR .
Survey method and a mod	sample patc	h 1	sample pato	ch 2	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&4	
Details (if not standard)		·								
Extent (I x w patch)	6X2		5X2		4X2		4X2		2X2	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		2		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			4 n type(s) search		4		4		4	
cobble (6.5-15cm)		paton, mdl	YES		YES		YES		YES	
cobble (15-25.6cm)			YES		YES		YES		YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm)									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)										
pebble (<6.5cm)										
gravel (<1.6cm) sand (<2mm)										
	YES		YES		YES		YES		YES	
silt	0		0		. 20				0	
Siltation none										
low	YES		YES		YES		YES		YES	
moderate										
high					VEO		VEO			
Refuges in bank none cobble/boulder					YES		YES		-	
tree roots, large				-	YES	-				
vertical or undercut bank				Ì	-	Ì				
dry stone wall										
other reinforced										
crayfish burrows										
Shading above	HEAVY		MOD		HEAVY		MOD		MOD	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	10		8		12		12		10	
Bullhead present?										
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	Notes (surv	ey conditions, p	vatches etc.):						
2, (E if >33% affected), aliens 3.										
Total crayfish (by 1 method, note total(s) by other methods in notes if applicable)	0									
notes il applicable)	0	I	-							

		CRA	FISH H	ABITAT	SURVE	Y FORI	И			
Ostahasaat	144		Diana	L b and			Site (no.,			40
Catchment	Wye	Surveyor	River	Llynfi			name) Grid ref.			13
Date (dd/mm/yy)	13/09/2016	S Flow norm	DR LW			Clarity,	(d/s end)	SO 13082	27665	
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. &							and	an strike		
Location Site length (m)	Just upstrea	m of roadb	ridge							
Width chonnel (m)	2	(channel features,	Londung	woodlond	rozina		-	A CO		2.5
Width channel (m)	sample patc	landuse) h 1	Land use - sample pate		sample pat	tch 3	sample pa	tch 4	sample pat	tch 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)	10.4		10.4	ļ	1 & 4		1 & 4		1 & 4	
Extent (I x w patch)	3x2		2x2		3x2		3x2		3x2	
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)	3		3		3		3		3	
Refuges in channel	tick all present	in patch, mair			0				0	
cobble (6.5-15cm)										
cobble (15-25.6cm)	YES						YES	-	YES	
boulder (25.6-40cm)	YES		YES		YES		YES		YES	
boulder (>40cm) rubble (give size)			YES		YES					
woody debris	YES		YES		YES		YES		YES	
other urban debris										
tree roots, fine	YES		YES		YES		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)										
clay										
silt	YES		YES		YES		YES		YES	
Siltation none										
low moderate										
	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	NONE		HEAVY		HEAVY		MOD		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	8		8		6		10		8	
Bullhead present?										
Evaluation crayfish habitat for whole site (0 none, 1 pres., 2 freq., 3 abund.) in margins	Score	Notes (surv	ey conditions, p	patches etc.):	Good acce	ss from roa	adbridge			
in mid channel	1									
in banks surveyability	1									
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	ΑΒΙΤΑΤ	SURVE	Y FORI	M			
Catchment	Wye		River	Llunfi			Site (no., name)			14
		Surveyor		Llynfi			Grid ref.			14
Date (dd/mm/yy)	13/09/2016	S Flow norm	DR LW			Clarity,	(d/s end)	SO 13656	25068	
Weather, good 1, mod 2, poor	1	1, low 2, fall 3, rise 4		Water temp. oC	12	good 1, mod 2, poor 3	1			
Photo ref. &		-,		tompi de		_,	A Call	-ANITAS		
Location	Near roadb	idge					A Sui			Cartala.
Site length (m)	300							1		
		Descript. (channel features,	Land use - stock acces channel is s	ss. Eroded	banks and i	river		1		
Width channel (m)	sample pate	landuse) h 1	refuges sample pate	ch 2	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		1 & 4		1 & 4		1 & 4		1 & 4	
Details (if not standard)	10.4		10.4	<u>.</u>	1 & 4		1 & 4	<u> </u>	1 & 4	
Extent (I x w patch)	5x1		6x1		8x1		12x1		14x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	
Depth (metres)	0.1		0.1		0.1		0.1		0.2	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	3		3		3		2		4	
Refuges in channel			main type(s) se	÷			2			
cobble (6.5-15cm)			YES		YES				YES	
cobble (15-25.6cm)	YES				YES				YES	
boulder (25.6-40cm) boulder (>40cm)							1		153	
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)										
pebble (<6.5cm)										
gravel (<1.6cm)										
sand (<2mm) clay										
silt	YES		YES		YES		YES		YES	
Siltation none										
low moderate										
moderate high			YES		YES		YES		YES	
Refuges in bank none	YES		YES		YES		YES		YES	
cobble/boulder										
tree roots, large										
vertical or undercut bank dry stone wall										
other reinforced					1		1		1	
crayfish burrows										
Shading above	MOD		LIGHT		LIGHT		HEAVY		MOD	
Crayfish/10 refuges, or per unit (depending on method)	0		0		0		0		0	
Search time (Mins)	5		5		8		5		5	<u></u>
Bullhead present?		Nister -								
Evaluation crayfish habitat for whole site (0		INOTES (surv	ey conditions, p	oatches etc.):						
none, 1 pres., 2 freq., 3										
abund.)	Score									
in margins in mid channel	0									
in banks	1	1								
surveyability	3									
Problems pollution 1, erosion										
 (E if >33% affected), aliens 3. 	2e									
Total crayfish (by 1 method, note total(s) by other methods in										
notes if applicable)	0		-							

		CRA	FISH H	ABITAT	SURVE	Y FOR	M			
Catchment	Wive		River	Lluofi			Site (no., name)			15
	Wye	Surveyor		Llynfi			Grid ref.	-		15
Date (dd/mm/yy)	13/09/2016	S Flow norm	DR LW			Clarity,	(d/s end)	SO 13899	24149	
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. &	At field hour	don in fir	at 100m				S. den			
Location Site length (m)	At field bour	Descript. (channel	Land use - places, occ zone of tree Some areas	asional riffl as and bush	es and glide nes on river	es . Buffer banks				
Width channel (m)	1	features, landuse)	entering riv				<u>Selet</u>		AN T	States.
	sample pato		sample pate		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		1 & 4		1 & 4		1&4		1 & 4	
Details (if not standard)								•		
Extent (I x w patch)	4x1		7x1		3x1		9		7x1	
Channel (1 margins, 2 mid, 3 both, other specify)	3		3		3		3		3	
Depth (metres)	0.1		0.2		0.4		0.2		0.1	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	4		5		2		4		5	
Refuges in channel	tick all present	in patch, ring	main type(s) se	arched						
cobble (6.5-15cm) cobble (15-25.6cm)							YES YES			
boulder (25.6-40cm)							TES			
boulder (>40cm)	YES									
rubble (give size)										
woody debris other urban debris	YES		YES		YES		YES		YES	
tree roots, fine	YES		YES		YES		YES		YES	
moss										
filamentous algae										
other submerged veg. emergents	YES		YES				YES			
Main substrate beneath	TL0		125				125			
bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm) gravel (<1.6cm)										
sand (<2mm)										
clay										
silt Siltation none	YES		YES		YES		YES		YES	
Sittation none low										
moderate										
	YES		YES		YES		YES		YES	
Refuges in bank none cobble/boulder										
tree roots, large	YES				YES					
vertical or undercut bank			YES		YES				YES	
dry stone wall										
other reinforced										
crayfish burrows Shading above	HEAVY		MOD		MOD		MOD		MOD	
Crayfish/10 refuges, or per										
unit (depending on method) Search time (Mins)	0		0		0		0		0	
Bullhead present?	0		10		10		0		0	
Evaluation crayfish habitat for whole site (o none, 1 pres. 2 freq., 3 abund.) in margins in mid channel in banks surveyability Problems pollution 1, erosion 2, (f: it, 23% offested) place 2	Score 1 1 1 3	Notes (surv	ey conditions, p	atches etc.):						
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 FOR	И			
Catchment	Wye		River	Llynfi			Site (no., name)			16
		Surveyor		Цутп			Grid ref.	0.0 4 4070	00000	10
Date (dd/mm/yy)	13/09/2016	Flow norm	DR LW			Clarity,	(d/s end)	SO 14270	23082	
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. & Location	Adjacent roa	he					and i			
Site length (m)	100	Descript. (channel features,	Land use 0.5m beyon							
Width channel (m)	1	landuse)	under road				THE .	S CAR	MAN .	N AN
Survey method, std 1, quad	sample patc	h 1	sample pate	:h 2	sample pat	tch 3	sample pat	tch 4	sample pa	atch 5
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 mid, 3 both, other specify)	4x1 3		5x1		7x1 3		2x1 3		4x1 3	
Depth (metres)	0.1		0.1		0.2		0.1		0.1	
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	5		5		2		4		5	
Refuges in channel		in patch, ring	main type(s) se		_				•	
cobble (6.5-15cm)	YES		YES		YES		YES		YES	
cobble (15-25.6cm) boulder (25.6-40cm)					YES					
boulder (>40cm)	YES									
rubble (give size)										
woody debris										
other urban debris	VEC				YES				VEC	
tree roots, fine moss	TES				TES				YES	
filamentous algae										
other submerged veg.										
emergents	YES				YES					
Main substrate beneath bedrock										
cobble (6.5-15cm)										
pebble (<6.5cm)	YES		YES		YES		YES		YES	
gravel (<1.6cm)										
sand (<2mm)										
clay silt										
Siltation none										
	YES		YES		YES		YES		YES	
moderate										
high Refuges in bank none										
cobble/boulder										
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	HEAVY		HEAVY		HEAVY		HEAVY		HEAVY	
Crayfish/10 refuges, or per unit (depending on method)		_								
Search time (Mins)	0		0		0		0		0 8	-
Bullhead present?			ĺ				ĺ			
Evaluation crayfish habitat for whole site (o none, 1 pres., 2 freq., 3 abund.) in margins in mid channel in banks surveyability	Score 1 1 1 3	Notes (surv	ey conditions, p	atches 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									

11.17. Appendix Q: Crayfish Habitat Survey Forms for Afon Chwefru (Two forms) CRAYFISH HABITAT SURVEY FORM

				I SURVEY FOR	Site (no.,	
Catchment	Wye		River Chwefru		name)	1
Date (dd/mm/yy)	22/08/2016	Surveyors	DRIW		Grid ref. (d/s end)	SN9915453590 to SN9875953879
		Flow norm		Clarity,		
Weather, good 1, mod 2, poor 3	1	1, low 2, fall 3, rise 4	Water 1 temp. of	good 1, mod 12 2, poor 3	1	
Photo ref. &					100	
Location	Typical stret	ch			ALS MAR	and the second second
						F
					the start	
Site length (m)	500					
		Descript.			AN SEL	
		(channel features,	Land use - grazing. (Occasional stock access.		and the second second
Width channel (m)		landuse)	Many excellent areas		acmala ac	toh 4 anomala potoh F
Survey method, std 1, quad	sample patc		sample patch 2	sample patch 3	sample pa	
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 mid, 3	5x1		4x2	1x5	4x1	5x2
both, other specify)	1		3	3	1	3
Depth (metres)	0.3		0.3	0.4	0.3	1
Feature (1 marg. d'water, 2 pool, 3 glide, 4 run, 5 riffle)	1		4	4	3	
Refuges in channel		in patch,main	4 type(s) searched in red	4	<u>ا</u> ع	. J U
cobble (6.5-15cm)	YES		YES	YES	YES	YES
cobble (15-25.6cm)			YES	YES	YES	YES
boulder (25.6-40cm) boulder (>40cm)	TES		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	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	VEQ		VES	VES	VES	VES
tree roots, large vertical or undercut bank	153		YES YES	YES	YES	YES
dry stone wall			169			
other reinforced						
crayfish burrows Shading above	MOD		MOD	MOD	HEAVY	MOD
Crayfish/10 refuges, or per						
unit (depending on method)	0		0	0	0	
Search time (Mins) Bullhead present?	12		8	10	12	13
Evaluation crayfish					*	
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 (by 1 method,						
note total(s) by other methods in	_					
notes if applicable)	0					

	CRA	YFISH HABITAT	SURVET FORM		
Catchment	Wye	River Chwefru		Site (no., name)	2
Data (dd/mm/uu)	22/08/2016 Surveyore				SN9993052718 to SN9974453165
Date (dd/mm/yy)	22/08/2016 Surveyors Flow norm		Clarity,	(a/s end)	319974433165
Weather, good 1, mod 2, poor 3	1, low 2, fall 1 3, rise 4	Water 1 temp. oC	good 1, mod 12 2, poor 3	1	
Photo ref. & Location	Ford between fields eith	er side of the river			
Site length (m)	500				- Alder
	Descript. (channel features,	Land use - grazingExc	cellent areas where		
Width channel (m)	7 landuse)	there is no stock acces		11 11 112	AND AND AN AND AND AND AND AND AND AND A
Survey method, std 1, quad	sample patch 1	sample patch 2	sample patch 3	sample pate	ch 4 sample patch 5
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)	5x2	4x3	4x1	3x3	1x6
Channel (1 margins, 2 mid, 3	2	2	1	3	0
both, other specify)	3	3		-	3
Depth (metres) Feature (1 marg. d'water, 2	0.3	0.3	0.3	0.4	0.4
pool, 3 glide, 4 run, 5 riffle)	4	4	4	3	4
Refuges in channel cobble (6.5-15cm)	tick all present in patch, main	type(s) searched in red YES	YES	YES	
cobble (0.5-15cm)		YES	YES	YES	YES
boulder (25.6-40cm)			YES	YES	YES
boulder (>40cm)					
rubble (give size)		¥50			
woody debris other urban debris		YES			
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		VES		VES	
tree roots, large		YES	VEC	YES	VE0
vertical or undercut bank dry stone wall		YES	YES	YES	YES
other reinforced					
crayfish burrows			-		
Shading above Crayfish/10 refuges, or per	MOD	MOD	MOD	MOD	MOD
unit (depending on method)	0	0	0	0	0
Search time (Mins)	10	6	10	10	10
Bullhead present? Evaluation crayfish	Notoo /-	ey conditions, patches etc.):			
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 methods in	Score 3 3 3 3 3	y conditions, parches etc.).			
notes if applicable)	0				

CRAYFISH HABITAT SURVEY FORM



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