Granamore Commonage

2019 Ecological Survey



Final Report

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Granamore Commonage

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Table of Contents	
1. Introduction	3
2. SUAS Vegetation Management Measures	3
3. 2019 Walkover Survey	5
4. Appendix 1. Maps and Management Recommendations	12
5. Water Quality	26

Granamore Commonage

2019 Ecological Survey

1. Introduction

A baseline habitat condition and ecological survey and habitat management plan was prepared for the Granamore Commonage in 2018¹ and the measures within same underwent screening for Appropriate Assessment².

The management prescriptions in the SUAS plan for the commonage set out to address the impacts highlighted in that report so progress is made towards attaining Favourable status for the Annex I habitats present on the site – principally 4010 Northern Atlantic Wet Heaths with *Erica tetralix* , 4030 Dry Heath and 7130 Blanket Bog.

The major impacts arise from uncontrolled burning, over grazing (possibly historically from sheep but also from deer), historic turf cutting and associated drainage, lack of active shepherding (which would encourage sheep out of favoured areas) changes in timing of grazing on the hill (less sheep grazing in winter & early summer, which is now based around when grass growth is present so sheep favour these areas), recreational access from horse riding resulting in localised peat erosion near the track, and natural exposure and erosion. Self-seeding of Sitka spruce and encroachment of bracken across the commonage are also being addressed.

The extent of habitats present within the commonage and their affinities to either Fossitt (Level 3) or Annex I habitats on the Granamore Commonage were mapped as presented on Figures 1 and 2 (see Appendix 1) and their conservation status was assessed and mapped as shown on Figure 3 (see Appendix 1). A series of management prescriptions were drawn up for the commonage as detailed in Table 1 and mapped on Figure 4 (see Appendix 1).

2. SUAS Vegetation Management Measures

The proposed management measures for the Granamore commonage under SUAS are as follows:

Year 1 (2019)

1. Clean up all the box shores and drains along the side of the roads coming in from Corragh and bog road from Granamore. Aim is to divert water off the road to prevent further erosion. Consult with NPWS for advice before commencing work.

- 2. Cut some of the windblows in Area 3. Use some of these cut trees to block up some of the gullies in the peat on the slopes of area 3 (advice on how to block these gullies to be provided by and in consultation with project ecologist).
- 3. Cut a number of small sections of heather & gorse in area 20 to encourage sheep to graze in this area. Cut sections up to 0.5ha each and up to a total of 2ha in 2019.
- 4. Block drain along top of turf banks in area 18 (advice to be given by project ecologist).
- 5. Control burn a section, up to 1ha in size in area 23 to control strong heather and encourage sheep to graze this area. Fire control lines, at least 2-3m wide shall be cut around each section, either by tractor mounted machine or by hand, to ensure these controlled burning areas are contained. Controlled burning may be carried out either in the spring or the autumn so long as it is within the legal burning season and has the approval of NPWS.

¹ Wilson, F. (2019). Ecological Baseline Survey prepared for Granamore Commonage as part of the Commonage Management Plan for SUAS. 8th February 2019. Unpublished report for SUAS EIP.

² Wilson, F. (2019). Report for Screening for Appropriate Assessment for a Commonage Management Plan at Granamore, Hollywood, Co. Wicklow in accordance with the requirements of Article 6(3) of the EU Habitats Directive 11th February 2019. Unpublished report for SUAS EIP.

Year 2 (2020)

- 1. Control burn gorse on the dry banks in area 10. Ensure that the fire does not extend into the surrounding gorse areas.
- 2. Cut or control burn a further 1ha in area 23, ensuring to leave some areas of tall heather untouched.
- 3. Cut more of the windblows on the various areas of the commonage.
- 4. Cut gorse in area 2 (around the mass rock). This will be cut by hand using either saws or brush cutters as the area is surrounded by bracken and due to the rough terrain and rocky nature, burning would be very difficult to control. Professional contractors will be hired in to trial this work to see if it is feasible.
- 5. Discuss further road repairs with NPWS.

Year 3 (2021)

1. To be reviewed at the end of year 2.

Year 4 (2022)

1. To be reviewed at the end of year 2.

Shepherding

Average time per shepherding: 6 Hours

No of times sheep are to be shepherded: 2-3 Times per week from 1st May to 30th November.

Identified objective of the shepherding;

- Sheep are to be kept from straying off the commonage onto surrounding areas.
- Move off sheep from other commonages.
- Help new sheep on the commonage to settle onto the commonage and not wander too far or just stay around the mass rock or top of the pastures.
- Sheep to be moved off area 3 regularly to reduce grazing pressure there. Move sheep into the taller vegetation regularly to get them to graze these areas.
- Monitor sheep health for signs of tick diseases.
- Count numbers of deer grazing the commonage and areas they are grazing.

Other works to be carried out for entire commonage

Erect 2-3 grazing enclosures on plot 3 to see what effect deer grazing is having on this area.

Use feed buckets to encourage more sheep grazing the commonage in the Jan/Feb and April/May period.

Use the feed buckets to move grazing pressure away from the grass areas to overgrown areas in Jan/Feb period.

Details of sheep stocking rates proposed

Accurate sheep numbers will be obtained in year 1 and over the remaining 3 years, they will be increased gradually up to GLAS stocking rates.

Ecological Assessment

The commonage was surveyed in November 2019 by Faith Wilson to examine and review the implementation of the proposed measures and make any recommendations regarding same. The observations and recommendations from this visit are set out below.

3. 2019 Walkover Survey

The following observations, comments on same and recommendations on the works completed in 2019 are presented.

Works to the box shores and drains along the side of the roads coming in from Corragh and bog road from Granamore

Initial works have been done on the roadway to divert the water from the track in consultation with National Parks and Wildlife Service (NPWS). This work has been done very sensitively and has been well executed.

On the day of my visit there was a considerable amount of surface water continuing to come down the track and I wondered if the installation of a series of water bars along the track – particularly at the shores should be implemented.



Plate 1. Recently cleared shores allowing the water to escape off the track.

Above the old borrow pit (in Area 20) the track is very wet and dominated by rushes particularly in the centre of the track. There is very deep rutting of the track here, which is actually creating a channel for water and exacerbating the situation downslope on the track.

It is understood that the farmers are waiting for the roadway to dry out before they do anymore, and all works will be in consultation with NPWS (they prefer not grading off the roadway if possible following, some investigations by themselves). On the area above the borrow pit, there is no

foundation under most of this and any work needs to be carefully planned and Ann Fitzpatrick, NPWS is working with the farmers on this.



Plate 2. Tyre tracks have created deep channels for water to flow down on the track above the old borrow pit.

Firebreaks/Vegetation Cutting

It appeared as if a number of firebreaks for controlled burning had been created on Granamore commonage as can be seen in the Bing Maps imagery of the commonage as presented on **Figure 1** below. These were created in Area 10 and Area 20 on the slopes of the hillside using a flail behind a tractor but this cutting activity was not intended to be used a firebreaks.

There were no actual firebreaks cut on Granamore. The plan was for some cutting/mulching of vegetation in area 20, particularly areas dominated by gorse. The tractor and mulcher was not able to work in the very rough and stony areas, so he just cut in the areas where he could. The contractor just cut in large circles like he did on the other sites, even though he was supposed to cut small isolated areas (no one from the project team was there to supervise him on the day). He also did some cutting in area 10 as the farmers asked him to, but these are not firebreaks.

Controlled Burning

The areas where burning took place in Area 10 had not been identified in the proposed management works as set out in **Table 1** (see **Appendix 1**). They focused on a small knoll which had gorse present. The plan was to have controlled burning in areas 23 & 24 in 2019 and in area 10 in 2020. Unfortunately, it was so late getting the baseline reports completed and agreement with NPWS that we didn't have time to prepare the necessary firebreaks. With agreement from NPWS, two small areas in area 10 were burned in 2019 and areas 23 & 24 will be done in 2020.



Figure 1. Firebreaks cut on Granamore Commonage (Bing Maps).



Plate 3. Burnt gorse on the knoll in Area 10.

Sheep are congregating in this area post burning with extensive dunging and grazing pressure on the grasses underneath. This has resulted in areas of bare soil and poaching. The sheep need to be shepherded regularly out of this area to reduce browsing pressure on same. Patches of heath rush

(*Juncus squarrosus*) are present and if browsing pressure remains too high this species will begin to dominate as it is unpalatable to sheep.

The burn here would appear to have got out of control and entered the area of adjoining wet heath/blanket bog. Thankfully the ground conditions must have been relatively wet as the *Sphagnum* and other mosses were undamaged and the bryophyte layer is intact but the area is heavily browsed and the sheep need to be moved regularly out of here.



Plate 4. Extensive dunging, bare soil and heavy browsing in the recently burnt area.

As described above it appeared as if areas were prepared for burning in Area 20 however these areas were supposed to be cut/flailed in small patches (not in doughnuts). The areas that have been cut in Area 20 were often located in areas of heather that did not require burning/cutting and were actually of a manageable height for sheep to walk through. These areas should not be burnt/further cut/flailed.

The areas in Area 20, which had been identified by the commonage group members as requiring vegetation control, which was an area dominated by western gorse (*Ulex gallii*), generally remained unmanaged with no obvious significant interventions made as the ground here was too rocky to allow the machine to work in. If these areas are to be managed it will probably need to be done manually (see below).

The locations for future flailing works should probably be supervised and directed by the SUAS project manager more specifically on the ground until everyone understands what is trying to be achieved and resources and effort are not wasted.



Plate 5. Areas of autumn gorse either side of the flailed track.

In some parts of Area 20 as can be seen in **Plate 5** above the flailed track cuts through some of these patches and these small areas could be burnt or the use of buckets in these areas could be considered to encourage sheep out of the favoured areas and to reduce the vigour of the autumn gorse. Small areas within them could also be manually cut with brush cutters if the ground is unsuitable for a machine to work in.

It would be advisable that if any burning is planned for 2020 it is limited to very small patches within the areas prepared in 2019 that actually require management in Area 20 and that additional areas in Areas 23 and 24 are prepared and either flailed/subject to controlled burning to encourage sheep movement across the northern portion of the commonage.

Lessons should be learned from the experience of burning within the demonstration area on Glasnamullen. The results of this burning was favourable in that not every patch of vegetation within the prepared area had been burnt and some areas of tall standing heather were left which resulted in a nice mosaic of differing vegetation heights and material left to provide seed source for regeneration and ensure stability of the soil.

Sitka spruce removal

Cutting/removal of Sitka spruce from within the commonage will be done in 2020.

Acid grassland condition

The condition of the acid grassland on the slopes in Area 16 was further examined. These are actually in poorer condition than had been previously thought/initially assessed. In many areas the grass has been all but browsed out with the sward dominated by mosses or in other instances by dense mat grass (*Nardus stricta*) which is unpalatable to sheep. Additional surveys conducted during the vegetation growing season will further examine these areas. The ongoing shepherding and movement of stock off the upper portions of the commonage above the track on the Round Hill must be implemented.



Plate 6. Mat grass dominating the sward.

Drain blocking

Drain blocking on the commonage will be completed in 2020.

Erosion gullies

There was no noticeable improvement in the condition of erosion gullies in Area 3. These areas will be tackled in 2020 alongside the Sitka spruce removal.



Plate 7. Drain along northern edge of Area 19 awaits blocking.

4. Appendix 1. Maps and Management Recommendations

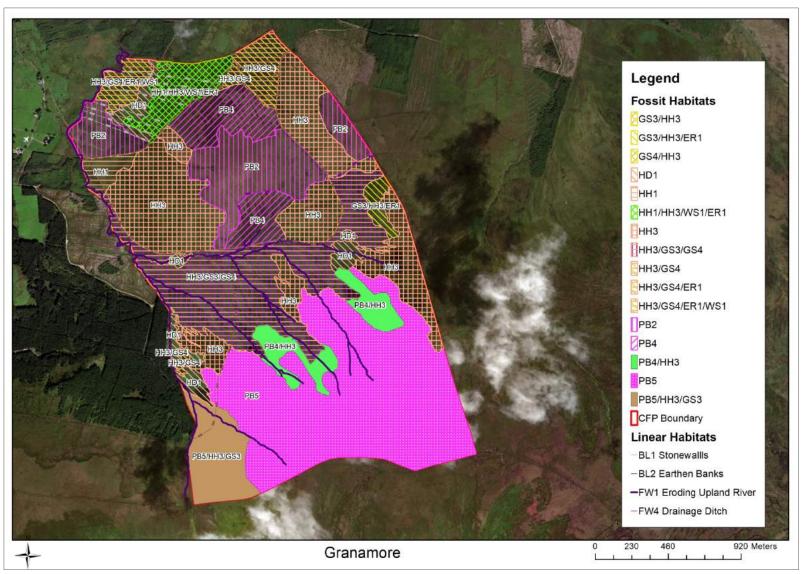


Figure 1. Habitats mapped to Level Three (Fossitt, 2000) within the Granamore commonage.

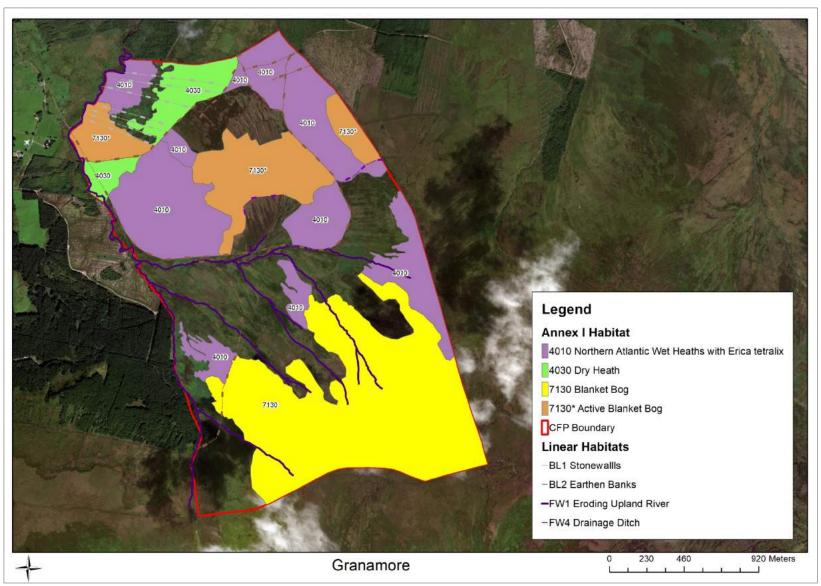


Figure 2. Habitats mapped according to their correspondence with Annex I habitats within the Granamore commonage.

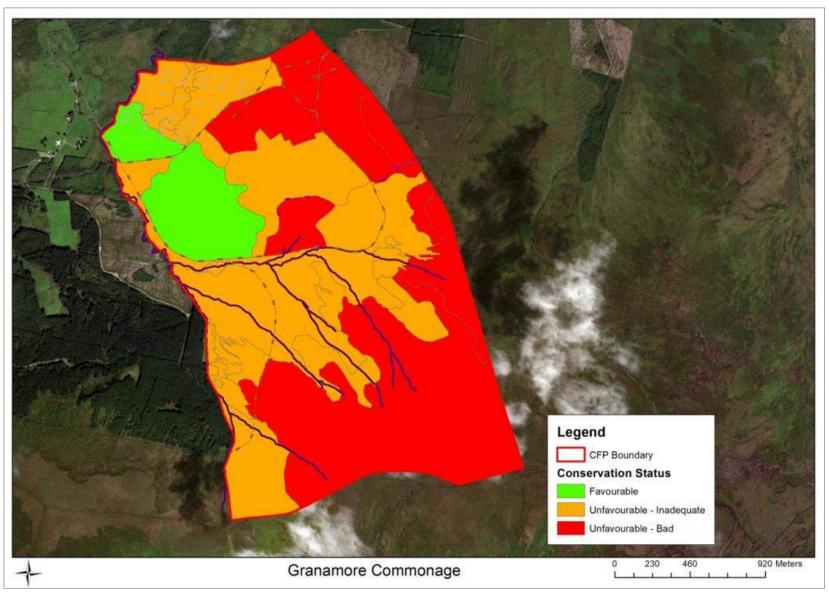


Figure 3. Habitat Condition Assessment for Granamore Commonage.

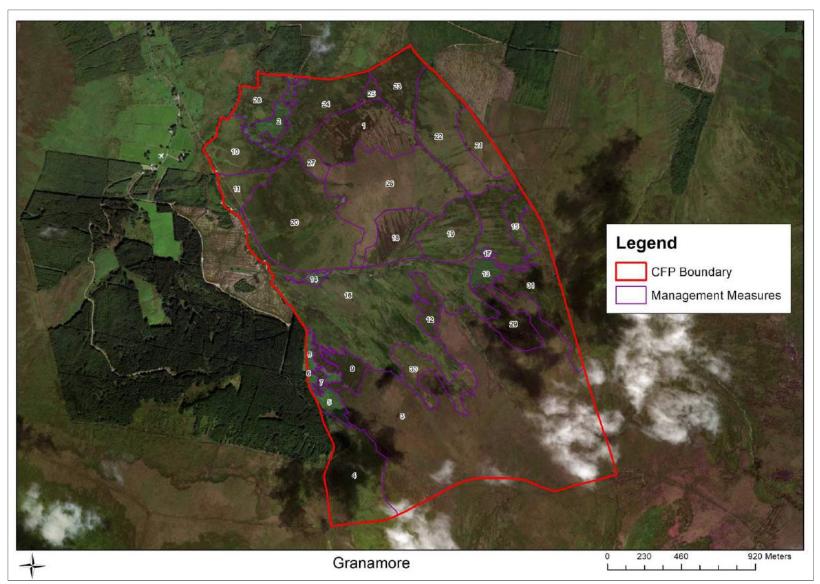


Figure 4. Management measures for Granamore.

Table 1. Habitats present on Granamore Commonage and Management Recommendations.

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
1			PB4	Cutover Bog	175048	17.50	Unfavourable - Bad	Avoid grazing this area so it can naturally revegetate.
2			HD1	Dense Bracken	54425	5.44	Unfavourable - Inadequate	Control bracken.
3	7130 (I'm not 100% sure on how to classify this as it is so damaged)	Blanket Bog	PB5 FW1	Eroding Blanket Bog Eroding Upland Watercourse	1245790	124.58	Unfavourable - Bad	This area was extremely badly burnt in 2001 and again in March 2003 which has resulted in the loss of vegetation on the ridge and drying out of the peat which is cracking in several locations. Erosion of this area is very severe in places as a result of a number of likely factors including uncontrolled burning, high deer numbers, natural erosion and exposure. Atmospheric ammonia/nitrogen enriching the peats in this area and contributing to a potential impact on water quality. A number of watercourses now rise on the ridge and have eroded out deep gullies in the peat – they previously rose from springs on the lower slopes (not the ridge). Restoration of the ridge vegetation is required. Destocking and exclusion of grazing is recommended. Erection of deer exclosures to assess deer browsing pressures. Provide grouse flight diverters on fencing if

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
		•						erected to reduce collision risk.
								Consider establishing protective woodland along the watercourse.
4			PB5/HH3/GS3	Eroding Blanket Bog/Wet Heath/Dry Acid Grassland	208217	20.82	Unfavourable - Inadequate	Control and remove regenerating spruce.
								Destocking and exclusion of grazing is recommended.
			FW1	Eroding Upland Watercourse				Erection of deer exclosures to assess deer browsing pressures.
								Protect watercourse through establishment of gully woodland.
5			HD1	Dense Bracken	31815	3.18	Unfavourable - Inadequate	Destocking and exclusion of grazing is recommended.
			FW1	Eroding Upland Watercourse				Erection of deer exclosures to assess deer browsing pressures. Provide grouse flight diverters on fencing if erected to reduce collision risk.
								Control bracken.
								Protect watercourse through establishment of gully woodland.
6			HH3/GS4	Wet Heath/Wet Grassland	101	0.01	Unfavourable - Inadequate	Control bracken to prevent invading heath.
			FW1	Eroding Upland Watercourse				Protect watercourse through establishment of gully woodland.
7			HH3/GS4	Wet Heath/Wet Grassland	8583	0.86	Unfavourable - Inadequate	Destocking and exclusion of grazing is recommended.
			FW1	Eroding Upland Watercourse				Protect watercourse through establishment of gully woodland.

Id	Annex I	Annex I	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
	Code	Description						
8			HD1	Dense Bracken	19933	1.99	Unfavourable - Inadequate	Control bracken.
								Destocking and exclusion of grazing is recommended.
								Protect watercourse through establishment of gully woodland.
9	4010	Northern Atlantic Wet Heaths with Erica tetralix	НН3	Wet Heath	56010	5.60	Unfavourable - Inadequate	There is some cracking in the peat here and the upper slopes are at risk of slippage.
								No burning or vegetation control should be proposed for this area as a result.
								Trespass from cattle was noted here.
								Destocking and exclusion of grazing is recommended.
10	7130*	Active Blanket Bog	PB2	Upland Blanket Bog	104934	10.49	Favourable	Monitor grazing pressure and sheep movements to ensure no decline.
11	4030	Dry Heath	HH1	Dry Heath	52330	5.23	Favourable	This area was burnt in December 1999 and again in March 2011, which would explain why it is now dominated by dry heath as opposed to wet heath.
								Consultation will be required with NPWS regarding any burning proposals here.
								My recommendation would be that no action is required in this area.
								Monitor grazing pressure and sheep movements to ensure no decline.
12	4010	Northern Atlantic Wet	НН3	Wet Heath	43772	4.38	Unfavourable - Inadequate	Monitor grazing pressure and sheep movements to ensure no further

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
		Heaths with Erica tetralix	FW1	Eroding Upland Watercourse				decline of wet heath. Destocking and exclusion of grazing is recommended. Consider establishing protective woodland along the watercourse.
13			HD1 FW1	Dense Bracken Eroding Upland Watercourse	30221	3.02	Unfavourable - Inadequate	This area was burnt in March 2003 which would have allowed the bracken to take hold. Control bracken. Destocking and exclusion of grazing is recommended. Consider establishing protective woodland along the watercourse.
14			HD1	Dense Bracken	10346	1.03	Unfavourable - Inadequate	The adjoining area (16) was burnt in March 2011 and this area may also have been burnt. This would have allowed the bracken to take hold in the general area. Control bracken. Destocking and exclusion of grazing is recommended.
15			GS3/HH3/ER1	Dry Grassland/Wet Heath/Exposed Rock	38503	3.85	Unfavourable - Bad	This area was badly burnt in 2001 and has still not yet recovered. No further burning in this area. Shepherd livestock out of here to allow it to recover. Destocking and exclusion of grazing

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
								is recommended.
16			HH3/GS3/GS4	Wet Heath/Dry Acid Grassland/Wet Grassland	682910	68.29	Unfavourable - Inadequate	This area was partially badly burnt in the eastern part of the slope in 2001 and has still not yet recovered.
				Eroding Upland Watercourse				The upper slopes of the eastern part of this area (near area 29) were again burnt in March 2003.
			FW1	watercourse				Part of the area was also burnt again in March 2011.
								This would have allowed the bracken to take hold in the general area.
								No further burning in this area.
								Grazing would appear to be altering wet heath to wet grassland/dry acid grassland.
								Shepherd livestock out of here to reduce pressure.
								Remove seeding Sitka spruce.
								Destocking and exclusion of grazing is recommended.
								Consider establishing protective woodland along the watercourse.
17			HD1	Dense Bracken	3450	0.35	Unfavourable - Inadequate	Control bracken.
18			PB4	Cutover Bog	99705	9.97	Unfavourable - Bad	Block drain along northern boundary of old cutover at regular intervals.
								Fence if required to ensure that animals do not get stuck in drain.
								Provide grouse flight diverters on

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
								fencing if erected to reduce collision risk.
19	4010	Northern Atlantic Wet Heaths with Erica tetralix	ННЗ	Wet Heath	113523	11.35	Unfavourable - Inadequate	Hydrologically at risk from old adjoining cutover - monitor grazing pressure and shepherd accordingly.
20	4010	Northern Atlantic Wet Heaths with Erica tetralix	ННЗ	Wet Heath	338684	33.87	Favourable	This area was previously burnt in March 2011 which may account for the regeneration of gorse in one area. Consultation will be required with NPWS regarding any burning/flailing proposals here. In general the burn must not have been too intense in this area as it was in good condition. This area has been subject to a landslide in the past.
21			PB2	Upland Blanket Bog	62430	6.24	Unfavourable - Bad	This area was badly burnt in 2001 and has still not yet recovered. The lower (northern) slopes of this area appeared to have escaped the burn. Shepherd livestock out of here to reduce pressure and allow vegetation to continue to recover.
22	4010	Northern Atlantic Wet Heaths with Erica tetralix	НН3	Wet Heath	193403	19.34	Unfavourable - Bad	This area was badly burnt in 2001 and has still not yet recovered. The lower (northern) slopes of this area appeared to have escaped the burn. A more recent burn was also noted

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
		•						(this is undocumented by NPWS) which extends down to the track. Shepherd livestock out of here to reduce pressure and allow vegetation to continue to recover. Block linear drains on these slopes at appropriate intervals to restore hydrology. Remove seeding spruce.
23	4010	Northern Atlantic Wet Heaths with Erica tetralix	HH3/GS4	Wet Heath/Wet Grassland	95841	9.58	Unfavourable - Bad	Bad erosion in the vicinity of the track. Some minor works by hand may be allowed by NPWS to divert the water away from these areas and prevent further peat erosion. Reseeding of bare peats with heather seed/brash recommended. Remove seeding spruce.
24	4030		HH1/HH3/WS1/ER1	Dry Heath/Wet Heath/Scrub/Exposed Rock	145580	14.56	Unfavourable - Inadequate	Scrub clearance of gorse in this area will need to be discussed with NPWS.
25	4010	Northern Atlantic Wet Heaths with Erica tetralix	HH3/GS4	Wet Heath/Wet Grassland	12858	1.29	Unfavourable - Inadequate	Erosion in the vicinity of the track. Some minor works by hand may be allowed by NPWS to divert the water away from these areas and prevent further peat erosion.
26	7130*	Active Blanket Bog	PB2	Upland Blanket Bog	306297	30.63	Unfavourable - Inadequate	The bog surface has been damaged here by a quad. No further quad/scrambler access to the entire commonage should be allowed – on other commonages this has been

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
								controlled through locked gates. In general the bog is in good condition but the hydrological impacts of the cutover areas need to be considered.
27	4010	Northern Atlantic Wet Heaths with Erica tetralix	ННЗ	Wet Heath	25612	2.56	Unfavourable - Inadequate	Monitor condition and sheep grazing impacts.
28	4010	Northern Atlantic Wet Heaths with Erica tetralix	HH3/GS4/ER1/WS1	Wet Heath/Wet Grassland/Exposed Rock/Scrub	70876	7.09	Unfavourable - Inadequate	Some control of gorse in these lower areas was suggested by the group. Consultation will be required with NPWS regarding any clearing of scrub/burning proposals here.
29			PB4/HH3	Cutover Bog/Wet Heath	69252	6.93	Unfavourable - Inadequate	This area was badly burnt in 2001. This area was further damaged by an uncontrolled fire in March 2003 and has not yet recovered. The area was also the site of former peat cutting (now ceased) and this poses a risk to the stability of the areas of deeper peats on the slopes. Destocking and exclusion of grazing is recommended.
30			PB4/HH3 FW1	Cutover Bog/Wet Heath Eroding upland watercourse	88011	8.80	Unfavourable - Inadequate	The area was also the site of former peat cutting (now ceased) and this poses a risk to the stability of the areas of deeper peats on the slopes. Destocking and exclusion of grazing is recommended. Consider establishing protective woodland along the watercourse.
31	4010	Northern Atlantic Wet	НН3	Wet Heath	162076	16.21	Unfavourable - Bad	This area was extremely badly burnt in 2001 and again in March 2003 and

Id	Annex I	Annex I	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measure
	Code	Description						
		Heaths with Erica tetralix						has still not yet recovered.
								The area was also the site of former peat cutting (now ceased) which has removed a significant depth of peat exposing the rocks below.
								There is potential significant erosion/landslide risk in this area as a result.
								Destocking and exclusion of grazing is recommended.

5. Water Quality

Water samples were taken from five sampling locations in the headwater streams, which rise within the commonage on the slopes of White Moss Mountain with a further two samples taken below the confluence of these streams in the Douglas River as shown on **Figure 5** below. These are all unnamed in the EPA datasets with the exception of the stream, which forms the western boundary of the commonage, which is mapped as Douglas River. From west to east the remaining three streams are known locally/mapped on the 6" series as Roundhill Brook, unnamed and Leogh Brook/Tromawn. are all tributaries of the Douglas River (IE_EA_09D020200),

The water samples were assessed by Carl Dixon and in general the headwater streams (GR2, GR3, GR4 and GR5) were assessed as a stream 'At Risk' of not achieving 'Good' water quality status. The exception was GR1, which was assessed as 'Indeterminate' – where the stream is at risk of not achieving 'Good' water quality status. The two sampling locations downstream of here on the Douglas River (GR6 and GR7) were assessed as a stream 'Probably Not at Risk' of not achieving 'Good' water quality status. Given the level of recent clearfelling activity in the area this seems surprising.

The Small Streams Risk Score (SSRS) is a biological risk assessment system for identifying rivers that are definitely 'at risk' of failing to achieve the 'good' water quality status goals of the Water Framework Directive (WFD). It was developed by the Environmental Protection Agency (EPA) in association with the Western River Basin District (WRBD) in 2006. The main aim of the SSRS is to support the programme of measures for the WFD which has its main objective to achieve 'good' water quality status in all water bodies by 2020.

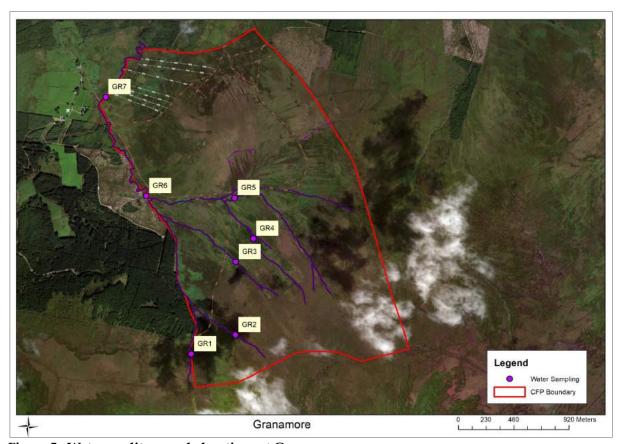


Figure 5. Water quality sample locations at Granamore.

SUAS Water Quality Sampling

River:	Code:	Date:	Sample Taken By:
Douglas River	IE_EA_09D020200	19/02/2019	Faith Wilson
		, - ,	
Sample Number:	Location:	Stream Order:	Grid Reference:
GR1	Headwater stream of	1st order	S 98976 97975
	Douglas River in		
	Granamore		
	commonage –		
	upstream of forestry		
Velocity:	Clarity:	Colour:	Discharge:
Torrential	Very clear	None	Flood
Fast	Clear	Slight	Normal
Moderate	Slightly turbid	Moderate	Low
Slow	Highly turbid	High	Very low
Very Slow			Dry
•			Recent flood
Modifications: Y	Dominant Types:	Slope:	Geology:
Canalised	Bedrock	Low	Calcareous
Widened	Boulder (>128mm)	Medium	Siliceous
Bank erosion -	Cobble (32 - 128mm)	High	Mixed
localised			
Arterial drainage	Gravel (8 - 32mm)	Very high	
	Fine gravel (2 - 8mm)		
	Sand (0.25mm - 2mm)		
	Silt (<0.25mm)		
Substratum Condition:	Substratum:	Degree of Siltation:	Depth of Mud:
Compacted	Stoney bottom	Clean	None
Loose	Muddy bottom	Slight	<1cm - peat
Normal	Mud over stones	Moderate	1-5cm
		Heavy	5-10cm
			>10cm
Litter:	Filamentous Algae:	Stream Flow:	Shading:
None	None	Riffle	High
Present	Present	Riffle/glide	Moderate
Moderate	Moderate	Slow flow	Low
Abundant	Abundant		None
C: 1 A	C F	O 1 TH (7.5)	36 1 7 177
Stock Access:	Sewage Fungus:	Sample Type (Mins):	Main Land Use Adjacent/Upstream:
Yes - from the	None	Kick sample - 3	Pasture
adjoining commonage			
	Present	Stone washing	Bog
	Moderate	Weed sweep	Forestry
	Abundant		Tillage
			Urban
			Other



Plate 1. Photographic record of sampling location - GR1.

GR1

		Code:	Da	te:		Time:			
Station no.		Location:			Gri	d (6 figure	:(:	-	
		Stream Ord	ee:		Str	sam flows	-		
5315		The state of the s	7000		Riffi	The same of the sa			
Field Chi	entisery	Modifications: anteral drainage		-wedened-bank e		e/Glide			
DO mg/l		Dominant Typ			Slow	flow			
		Bedrock							
Temp (°C)		Boulder (>128m	m)						
Conductivity		Cobble (32-128n	nm)					100000000000	
pH		Gravel (8-32mm							
Bank width (cm)	100000	Fine Gravel (2-8)					-		
Wet width (cm)		Sand (0.25-2mm	1				-		_
Avg.Depth (cm)		Sit (<0.25mm)					-		_
Staff gauge		Slopes Low - M	edium - High-	- Very High	-	ding: High-	W-A	-	-
Velocity	Colour	Geology: Calca	repus-Silosous	Mond	Still	aing: rign-	Moder	ME-LOW-N	lone
Torrental Fast	None	Substrutum Co			Catt	de access Yi	abstra.	am - downer	ne lem ov
Fast	Slight Moderate	Loose - Normal	INDEXONI CAIC	areous-Compact	10-	ne access 111	uprace ka	ani- Somme	THE REAL PROPERTY.
Moderata	Moderate	Substratume							
Slow	High	Stoney bottom-h	luddy bottom-	Mud over stores	Pho	oto:Y/N			
Very slow		Degree of silta			The second second				
Clarity	Discharge	THE RESERVE OF THE PARTY OF THE							
Very clear	Flood	Depth of mud:	None <10%	1-Sam: 5-10cm:	>10m				
Clear	Normal	Litters None - P	resent – Mode	rate-Abundant					
Slightly turbid	Low	Filamentous Al	gaes			age Fungus:			
A STATE OF THE PARTY OF THE PAR		None - Present -	Moderate - Al			- Present - N		te-Abundan	£
Highly turbid	Very Low Dry	Main land use		Sample		pled in Hinu	tes		
	Recent Flood	Pasture Bog	Urban Tillagi		Pond	necx			
	Process Coppe	Forestry	Other		Ston	e wash x			
		1	7000		Man	dsweepx			
he macroinvertebra	ites are childed into	Sacroinvertel	orate Com	position				Relativ	
Group 2 = P(s Group 3 = T(s Group 4 = G, Group 5 = As	rtes are divided into hemesoptera (3-ta ecoptera (2-talis)- choptera OL.D (Gastropoda refur	the following 5 spi ils) – note that tails note that tails may Oligocheisa, and Di	icific groups may be dama be damagedd ptera)	gedduring samp luring sampling				Abunda 1-5 6-20 21-50 51-100	ance 1
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	rtes are divided into hemesoptera (3-ta ecoptera (2-talis)- choptera OL.D (Gastropoda refur	the following 5 spi ils) note that talls note that talls may	icific groups may be dama be damagedd ptera)	gedduring samp luring sampling		nt (Abundance	ı-Ab)	Abunda 1-5 6-20 21-50	ance 1
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	rtes are divided into hemesoptera (3-ta ecoptera (2-talis)- choptera OL.D (Gastropoda refur	the following 5 spi ds) — note that tails note that tails may Oligochesta and Di se and relative abu Esthususus Ab	edic groups may be dama be damagedd ptera) rdance of each	gedduring samp luring sampling		nt (Abundance	Ab)	Abunda 1-5 6-20 21-50 51-100	ance 1
Group 1 = Ep Group 2 = Ph Group 3 = In Group 4 = G, Group 5 = As	rtes are divided into hemesoptera (3-ta ecoptera (2-talis)- choptera OL.D (Gastropoda refur	the following 5 opinis) — note that tails may Oligocheeta, and Di to and relative abur Editorus Ab Rhithmogra Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		nt (Abundance		Abunda 1-5 6-28 21-50 51-100 101+	ance 1
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	rtes are divided into hemesoptera (3-ta ecoptera (2-talis)- choptera OL.D (Gastropoda refur	the following 5 spi ds) — note that tails note that tails may Oligochesta and Di se and relative abu Esthususus Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		nt (Abundance		Abunda 1-5 6-20 21-50 51-100 101+	ance 1
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	rtes are divided into hemesoptera (3-ta ecoptera (2-talis)- choptera OL.D (Gastropoda refur	the following 5 opinis) — note that tails may Oligocheeta, and Di to and relative abur Editorus Ab Rhithmogra Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		nt (Abundance	Eroto	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Jaconda Ab memura Ab	ance 1
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	rtes are divided into hemesoptera (3-ta ecoptera (2-talis)- choptera OL.D (Gastropoda refur	the following 5 sig- ifs) — note that tails note that tails may Oligochesta, and Di ox and relative abu Estlemouses Ab Estlemouses Ab Estlemouses Ab Estlemouses Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		w: (Abundance	Eroto	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Isopensia Ab Isopensia Ab Isopensia Ab	ance 1
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	ites are divided into hieraespotess (2-tails)- choptess (2-tails)- choptess (00 (isastropoda after total number of ta	the following 5 op (is) — note that tails note that tails may Oligocheeta and Di or and relative about Esthinosours Ab Alectagenia Ab Schemessils Ab Geeris Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		H: (Abundance	Stoto Amob	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Roomsia Ab Hemura Ab Hemura Ab	ance 1
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	rites are divided into hieraspotena (3-ta ecoptena (2-talis)- choptena (0. b) (instrupcida influr total number of ta	the following 5 sig- incide that tails may Cligochesta, and Di is and relative abu Estimatura Ab Rhithsoperia Ab Hectapenia Ab Estimatura Ab Liectapenia Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		ns (Abundance	Bross Amob	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Boomsia Ab Holemura Ab Amile Ab Obsectors Ab	ance 1 2 3
Group 1 = Ep Group 2 = Ps Group 3 = Ts Group 4 = G, Group 5 = As Calculate the	vites are divided into hammesopress (2-tails)- chapters (2-tails)- chapters (0.1) (isstropodia artiur total number of ta 	the following 5 opi is) – note that sile, note that tails may Cligochesta and Di is and relative about Estherousus Ab Rhitmoseus Ab Hectopienia Ab Estherousus Ab Generic Ab Generic Ab merc deops Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		ws (Abundance	Bross Amob	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Roomsia Ab Hemura Ab Hemura Ab	ance 1
Group 2 = Bi Group 3 = Di Group 3 = Di Group 5 = Ai Calculate the phemerspiecae	vites are divided into histories (2-tails)- chopters Augustus OLD ((destropada aikur total number of ta final final	the following 5 sig- incide that tails may Cligochesta, and Di is and relative abu Estimatura Ab Rhithsoperia Ab Hectapenia Ab Estimatura Ab Liectapenia Ab	edic groups may be dama be damagedd ptera) rdance of each	ped during sampling sampling sampling		in (Abundance	Amob Other	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Boomsia Ab Holemura Ab Amile Ab Obsectors Ab	ance 1
Group 2 = Bi Group 3 = Bi Group 3 = Gi Group 5 = Ai Calculate the phemeropterac	vies are divided into histories (2-tails)- chootess. O. D. ((isstropoda añur total number of ta fata Eph	the following 5 opi is) – note that sile, note that tails may Cligochesta and Di is and relative about Estherousus Ab Rhitmoseus Ab Hectopienia Ab Estherousus Ab Generic Ab Generic Ab merc deops Ab	cofic groups may be dama be damagedd poera) adance of each Bilds	ped during sampling sampling sampling	ate group belo		Amob Other	Abunda 1-5 6-20 6-21-50 51-100 101+ Lauctra Ab Boomela Ab	ince
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Group 2 = Bi Group 3 = Bi Group 3 = Gi Group 5 = Ai Calculate the alternemopterar	vites are divided into his are divided into his homeophistic (2-tails)-chopfistics (2-ta	the following 5 cap (a) – note thattails note that tails may (Disportmenta and Di ca and relative abu Estheroward Ab Relationed Ab Estheroward Ab Estheroward Ab Estheroward Ab Estheroward Ab About Ab Memory despirab Dear Eshero Ab Estheroward Ab Ab (A) (G.OL.)	may be dama be damaged of poers) Tota Tota Tota	gedduring sampling himacroinvertebr constensi	ate group below	Total Refa	Amob Other Other	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Jeografia Ab	2 2 6
Group 2 = Bi Group 3 = Bi Group 3 = Calculate Group 5 = Ai Calculate the ahemeropterar	ites are divided into him to the control of the coopera (2-tails)-chooters. OLD ((is stropoda affur total number of tails) total number of tails fish find a function of tails of the coopera of tails.	othe following 5 opinion in the following 5 opinion in the first traffic may consider the first traffic may be and relative about Extensional Ab Abstraction Ab Abstraction Ab Abstraction Ab Abstraction Ab The First Epision Ab The Epision Ab The Epision Ab The Abstraction Ab The Abstraction Ab The Abstraction Ab The Ab The Abstraction Ab The Abstraction Ab The Abstraction Ab The	offic groups may be damagadd poera) Total Péles Estance of each Péles Estance of each Estance of Estan	pedduring sampling bring sampling macroinversibr copterar di no. of Taxa spec (5) Ab spac (6) Ab spac (6) Ab	Chicon	Total Refa	Amob Other Other	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Boomula Ab Boomula Ab Boomula Ab Boomula Ab Boomula Ab Boomula Ab Roscass Ab Blecop Ab Blecop Ab Blecop Ab Aban Aban Aban	ince
Group 2 = Bi Group 3 = Bi Group 3 = Calculate Group 5 = Ai Calculate the ahemeropterar	Alta are divided into a control (2-tails)-chopters. Countrol (2-tails)-chopters. Countrol (2-tails)-chopters. Countrol (2-tails)-chopters. Electrol (2-t	the following 5 op in	offic groups may be characted be damaged opera) transce of each plan and pl	gedduring sampling bring sampling invacronversibr copterar spec (5) Ab igtar (6) Ab igtar (6) Ab	chispo	Total Refa	Amob Other Other	Abunda 1-5 6-20 21-50 51-100 51-101 Leuctra Ab Espenda Ab Horizona	5 mce
Group 3 = Di Group 3 = Di Group 3 = Di Group 5 = At Calculate the Diemenspacear	vies are divided into his homeopters (3-tails)-chapters (3-tails)-chap	the following 5 cap (a) – note thattails note that tails may (disportmenta and Di as and relative abu Estheroward Ab Reinfonders Ab Estheroward Ab Estherowa	offic groups may be characted be damaged opera) transce of each plan and pl	gedduring sampling bring sampling invacronversibr copterar spec (5) Ab igtar (6) Ab igtar (6) Ab	Chicon Chicon San San San San San San San San San Sa	Total Refa	Stoto Amob Other Other thre A	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Boomda Ab Roomsa Ab	since 2
Group 2 = Bi Group 3 = Bi Group 3 = Calculate Group 5 = Ai Calculate the ahemeropterar	intes are divided into his hamespotra; (3-ta-is)-chooters. OLD ((is)-stroppoda. Solar inumber of ta Solar inumb	the following 5 cgs la) - note thattalis note that tails may Oligochesta and Di oa and relistive abu Esthiosusus Ab Richtmosera Ab Richtmoser	offic groups may be charaged opera) I feta be family be charaged opera) I feta be family be fa	pedduring sampling bring sampling macroinvertebroopteras sees (5) Ab spac (6) A	Chiego Chiego Da Ji	Total Refa	Eroto Amoria Other Other thre A	Abunda 1-5 6-20 21-50 51-100 51-101 Leuctra Ab Espenda Ab Horizona	2 2 6
Group 2 = Bi Group 3 = Bi Group 3 = Gi Group 5 = Ai Calculate the phemeropterac	Alta are divided into the coopera (2-tails)-choolers (2-tails)-chooler	the following 5 op in	offic groups may be charaged of ptera) Tota Fish Associate Ass	pedduring sampling sa	Change	Total Refa	Eroto Amoria Other Other thre A	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Boomda Ab Boomda Ab Brish Ab	5 2 2 2 6 6
Group 2 = Bi Group 3 = Bi Group 3 = Gi Group 5 = Ai Calculate the phemeropterac	utes are divided into him when experient (2-tails)-chootess (2-tails)-chootess (2-tails)-chootess (2-tails)-chootess (2-tails)-chootes (2-tails)-chootes (2-tails)-chootes (2-tails)-chootes (2-tails)-chootes (2-tails)-cho	the following 5 opinion in the following 5 opinion in the first traffic may Cligochesta and Di ca and relative about Estheorouse Ab Belletinosecus Ab Bellet	offic groups may be damaged opera) Total Ples Formal Pl	ged during sampling sampling sampling sampling sampling in macroinventebroosteras all ee. of Taxas sees (5) AH opas (6) AH opas (6) AH opas (6) AB hass (6) AB has	Change	Total Refa	Eroto Amoria Other Other thre A	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Econoida Ab inormuta Ab Ancia Ab Ancia Ab Bleccon Ab Bundance As Allias Fee (1-20 Common (5-20 NOTE: A	5 2 2 2 6 6
Group 3 = Dis Group 3 = Dis Group 3 = Dis Group 4 = G. Group 5 = As Calculate the phemeropteras	Applications of the second of	the following 5 opi ila) – note thattalis note that talis may Cligochesta and Di co and relistive abu Esthonomera No Richtmogera No Hecotopiera No Centric and Centric Ab Alexandric Ab Diversional	offic groups may be characted be damaged opera) Total Ples Formal Ples Associated Ples	pedduring sampling sa	Change	Total Refa	Eroto Amoria Other Other thre A	Abunda 1-5 6-20 21-50 51-100 101+ Leverra Ab Boomela Ab Rosemus A	since
Group 2 = Bi Group 3 = Bi Group 3 = Bi Group 3 = Gi Group 5 = Ai Calculate the Discourse of taxas richogateras	Alta serio divided into a le divided into a le coptese (2-tails)-choptese (2-tails)-chopt	the following 5 op in	offic groups may be characted be damaged opera) Total Ples Formal Ples Associated Ples	ged during sampling sampling sampling sampling sampling in macroinventebroosteras all ee. of Taxas sees (5) AH opas (6) AH opas (6) AH opas (6) AB hass (6) AB has	Change	Total Refa	Eroto Amoria Other Other thre A	Abunda 1-5 6-20 21-50 51-100 101+ Leuctra Ab Ecoenia Ab Internate Ab Ecoenia	since
Total no. of taxa	Applications of the second of	the following 5 cps (a) - note that tails may Cligochesta and Di co and relative abo Estheorouse Ab Richmosera Ab Record Ab Estheorouse Ab Lector Ab Estheorouse Ab Lector Ab Le	offic groups may be dismaged opera) I Tota British Storms S	ged during sampling sampling sampling sampling sampling in macroinventebroosteras all ee. of Taxas sees (5) AH opas (6) AH opas (6) AH opas (6) AB hass (6) AB has	Chiese Grand Delo	Total Refa	Broso Amobi Other Other Amobi	Abunda 1-5 6-20 21-50 51-100 101+ Leverra Ab Boomela Ab Rosemus A	5 Seells

NOTE Bacts is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Bacts is not counted in SSRS. See Appendix B for more details on how to identify Bacts.

Step.1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group calculated from page 1 of the recording sheet and enter in to the boxes in Step 2. Group 1 - 3 Tails Ephemeroptera Group 2 - 2 Tails Plecoptera No. of taxa 1 Group 3 Trichoptera Group 4 G.OL.D No. of taxa Step 2 Group 5 a) Index Score Group 1 b) Index Score Group 2 No. of taxa c) Index Score Group 3 d) Index Score Group 4 Few (1-20) (>20) e) Index Score Group 5 0 2 Step.3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below Total Index Score (TIS) 18 Average Index Score (AIS) 3.6 SSR Score 7-2 $\textbf{Step.4.} \ \, \textbf{Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box and the comparing the final SSR score with the categories below and tick the appropriate box and the comparing the final SSR score with the categories below and tick the appropriate box and the comparing the final SSR score with the categories below and tick the appropriate box and the comparing the final SSR score with the categories below and tick the appropriate box and the comparing the final SSR score with the categories below and tick the appropriate box and the comparing the compa$ Name (print): CAL DAM Date: Surveyor(signed):

30

SUAS Water Quality Sampling

River:	Code:	Date:	Sample Taken By:		
Douglas River -	IE_EA_09D020200	19/02/2019	Faith Wilson		
unnamed tributary					
Sample Number:	Location:	Stream Order:	Grid Reference:		
GR2	Granamore	1st order	S 99345 98133		
	Commonage -tributary				
	stream of Douglas river				
Velocity:	Clarity:	Colour:	Discharge:		
Torrential	Very clear	None	Flood		
Fast	Clear	Slight	Normal		
Moderate	Slightly turbid	Moderate	Low		
Slow	Highly turbid	High	Very low		
Very Slow	Trigitiy turbiu	111811	Dry		
very slow			Recent flood		
			ACCERTIONA		
Modifications: Y	Dominant Types:	Slope:	Geology:		
Canalised	Bedrock	Low	Calcareous		
Widened	Boulder (>128mm)	Medium	Siliceous		
Bank erosion -	Cobble (32 - 128mm)	High	Mixed		
localised					
Arterial drainage	Gravel (8 - 32mm)	Very high			
	Fine gravel (2 - 8mm)				
	Sand (0.25mm – 2mm)				
	Silt (<0.25mm)				
Substratum	Substratum:	Degree of Siltation:	Depth of Mud:		
Condition:	C. 1	CI	NT.		
Compacted	Stoney bottom	Clean	None		
Loose	Muddy bottom	Slight	<1cm		
Normal	Mud over stones	Moderate	1-5cm		
		Heavy	5-10cm		
			>10cm		
Litter:	Filamentous Algae:	Stream Flow:	Shading:		
None	None	Riffle	High		
Present	Present	Riffle/glide	Moderate		
Moderate	Moderate	Slow flow	Low		
Abundant	Abundant	SIGW HOW	None		
Stock Access:	Sewage Fungus:	Sample Type (Mins):	Main Land Use Adjacent/Upstream:		
Yes - from the adjoining commonage	None	Kick sample - 3	Pasture		
, 0	Present	Stone washing	Bog		
	Moderate	Weed sweep	Forestry		
	Abundant		Tillage		
			Urban		
			Other		



Plate 1. Photographic record of sampling location - GR2.

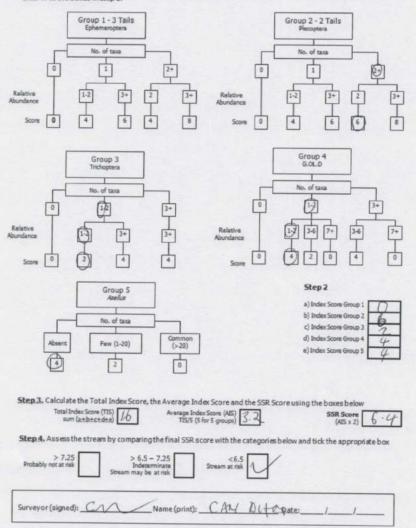
GRZ

River:		Code	22		Date:	BL SE		Time:				
Station no.	Location:			Grid (6 figure):								
		Stre	am On	der:	E 7500	75-77		Stream flows				
Reld C	emistry	Modi	Ecustous.	17/07	artalised-wid	and divine	The state of the s	Riffle				
D0%	- Commercy		drainag		AT WISHEST VINC	RIED-OWN.	erusian-	Riffie/Glide Slow flow				
DO mg/l			nant Ty					210M LIDM				
Temp (°C)		- Bedro	k	300						4334		
Conductivity		Soulde	r (> 128r	mm)								
OH		Cobble	Cobble (32-128mm)				7-15	100				
			(8-32mr ravel (2-1									
Bank width (cm)		Sand (0.25-2m	m)								
Wet width (cm)			0.25mm							Sale To A		
Avg.Depth (cm)		Slane	-1	Sadi m	- Mach - Mar	- inte						
Staff gauge Velocity		and of the particular state	Slopes Low - Medium - High - Very High			Shading: High - Moderate - Low - None			one			
Torrential	None		Geology: Calcareous-Sliceous-Mosed									
Fast	Slight	Subst	Substratum Condition: Calcareous-Compacted-		ted-	Cattle access Yi	pstrea	במרוווכם - והו	ream or N			
Moderate	Moderate		- Normal									
Slow	High		Substratum: Stoney bottom-Muddy bottom-Mud over stores				Photo: Y / N			_		
Very slow								PHOCO: 1/ N				
Clarity	Discharge	Degre	e of sait	atron:	Gean-Slight-	Moderate-F	SHEVY.					
Very clear	Flood	Depth	ofmud	: None	<1cm: 1-50	m: 5-10cm	>10m					
Clear	Nomal		Litter: None - Present - Moderate - Abundant									
Slightly turbid	Low	Prilame None	Process A	Ngae:	erate - Abund			Sewage Fungus:				
Highly turbid	Very Low	Main	and use	w/sc	FRIE-ADUIC	Sample	_	None – Present – Moderate - Abundant Sampled in Minutess				
	Dry	Pasture		4721	Urban	retaine	dr	Pond net x				
	Recent Floor				Tillage	YIN						
		Forestr	Y		Other			Stone wash x				
General Commen	and the same of th							Weed sweep x				
- Group 1 = E - Group 3 = I - Group 4 = G	Num 6 or 5 Okt D (Sustantino) (Sustantino)				Abundance 1-5 1 6-20 2 21-50 3 51-100 4							
Calculate the	total number of	taxa and re	lative abo	undance	of eachma	croinverteb	cate grou	p below: (Abundance	-Ab)	101+	5	
Ephenieroptica:	-	Eintren			Plecopi	terac				Leuctra Ab	1	
		Rhithma			The state of the s					Books Ab		
		Нистар	enia Ab		3					петися АЬ		
		Enhema	onlin Ab				11-11	Amahisemura Ab j Anda Ab			1	
		a	ectir Ab	100								
		Taraleomobi	abia Ab						-			
		bhemara da					-	Disocras Ab Other Blecop Ab				
		Other Eph					-	Other Please Ab				
Total no. oftaxa			-	-	-	-	CAL		_			
Trichoptera:		Retative Abund		-		of Taxa	5	Total Rela			2	
-	Hydrosych		G.OL		Lymnam			Chironomidae (D) Ab	100	Asellus		
	Rolycantropod	remanded the	-	- 45	STATISTAL STATE			Chiconomics(D) Ab	1	Abse	n	
-	Shanns Phinase		-	-	Blanochi		-	Simulidae (D) Ab		Ferr (1-20)		
-	Philocotami		-	-	degria			Dissanora (0) Ab		Commor		
-	Listnephili		4	_		(G) Ab		Tipulidae (0) Ab		(>20)		
-	Sericostomas		-	- 4	Lumbriculus		City City	ratopagonidae (o) as		-	1	
	Glossonman		-	-	Establish			Other GOLD: Ab		MOTE: A	restus	
-	Cebes Trickense		-		Jubfictee	(SE) Abi				recorded.	14	
Total no. of	Other Inchapte		+				_			abount if a	none	
Taxas		Retetive	100	1	Total no. o	Taxa /	Ter	tal Relative Abundance	1	are found		
		THE RESERVE AND ADDRESS OF THE PERSON NAMED IN				100		Control of the Contro				

NOTE Bacts is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Bacts is not counted in SSRS. See Appendix B for more details on how to identify Bacts.

GNQ

Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macrolinvertebrate group calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.

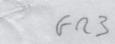


SUAS Water Quality Sampling

River:	Code:	Date:	Sample Taken By:		
Douglas River -	IE_EA_09D020200	19/02/2019	Faith Wilson		
unnamed					
Sample Number:	Location:	Stream Order:	Grid Reference:		
GR3	Granamore	1st order	S 99347 98741		
GRO	Commonage - tributary	1 Order	3 77347 70741		
	stream of Douglas river				
	Strewin of Boughts II. of				
Velocity:	Clarity:	Colour:	Discharge:		
Torrential	Very clear	None	Flood		
Fast	Clear	Slight	Normal		
Moderate	Slightly turbid	Moderate	Low		
Slow	Highly turbid	High	Very low		
Very Slow			Dry		
			Recent flood		
Modifications: Y	Dominant Types:	Slope:	Geology:		
Canalised	Bedrock	Low	Calcareous		
Widened	Boulder (>128mm)	Medium	Siliceous		
Bank erosion -	Cobble (32 - 128mm)	High	Mixed		
localised					
Arterial drainage	Gravel (8 - 32mm)	Very high			
	Fine gravel (2 - 8mm)				
	Sand (0.25mm - 2mm)				
	Silt (<0.25mm)				
Substratum Condition:	Substratum:	Degree of Siltation:	Depth of Mud:		
Compacted	Stoney bottom	Clean	None		
Loose	Muddy bottom	Slight	<1cm		
Normal	Mud over stones	Moderate	1-5cm		
		Heavy	5-10cm		
		,	>10cm		
Litter:	Filamentous Algae:	Stream Flow:	Shading:		
None	None	Riffle	High		
Present	Present	Riffle/glide	Moderate		
Moderate	Moderate	Slow flow	Low		
Abundant	Abundant		None		
Ct 1 A	C	O 1 III (3.4°)	3.6 ° T 1.77		
Stock Access:	Sewage Fungus:	Sample Type (Mins):	Main Land Use		
Yes - from the	None	Kick sample - 3	Adjacent/Upstream:		
adjoining commonage		-	Pasture		
	Present	Stone washing	Bog		
	Moderate	Weed sweep	Forestry		
	Abundant		Tillage		
			Urban		
			Other - wet		
			grassland/wet heath		



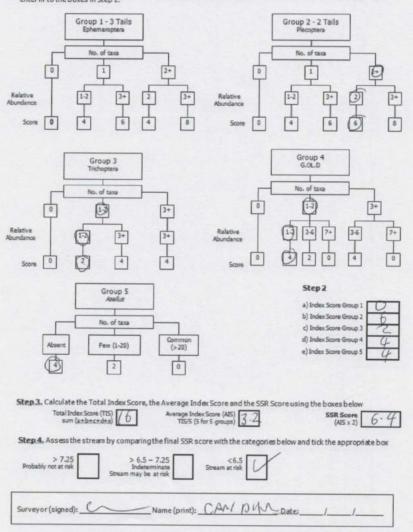
Plate 1. Photographic record of sampling location - GR3.



River:	_		Code		_	I Dake		_	T The		_		
			-	_				Time:					
			-	ocation:				Grid (6 figure):					
			Strea	Stream Order:				Stream flow:					
Field Ch	emistr	y	Modifi	cation	61 Y/N C	analised-wid	sered-bank e	erosion-	Riffle Riffle/Glide				
D0%			arterial						Slow flow				
DO mg/l			Domin		/pest						-		122.0
Temp (°C)			Bedrod								-		
Conductivity			Boulder Cobble	(>128	imm)						-		
pH			Gravel	B-32m	m)					_	-		
Bank width (cm)			Fine Gr										
Wet width (on)		_	Sand (0	1.25-2n	im)								
Avg Depth (cm)		_	Sit (<0	.25mm)								
Staff gauge			Slope:	Low-	Medium	- High - Ve	ry High						
Velocity	- 0	olour	Geology: Calcareous-Sliceous-Mixed				Shading:	High-N	looers	ne-Low-N	one		
Torrential		None					Cattle acc	wee Vi is	OFFICE A	m – downstr	www.ce.W		
Fast		TABLE .	Substr	Substratum Condition: Calcareous-Compacted- Loose - Normal			ad-	-		PRO SEE	- Comme	earror n	
Moderate	Mo	derate	Substr	atum:									
Slow		High				bottom-Muc	over stones		Photo: Y	7.7%	_		
Very slow Clarity			-				Moderate-H			* **			
		charge							100000				
Very clear	-	lood	Depth	ofmu	d: None	<1cm 1-50	on: 5-10cm:	>10m	200				
Clear	76	omal				- Moderate	- Abundant						
Slightly turbid	1	Low	Filame	ntous	Algaer	rate-Abun			Sewage Fu	ingus	1		300
Highly turbid	Var	y Law	Main la			Table - ADUR	Sample		Sampled i			te-Abundan	
CONTRACT SOCIAL		Dry	Pasture			Urban	retained	l:	Pond net x	n menus	-		
	Rece		Bog			Tilage	Y/N						
			Forestry			Other		550-1	Stone wash	×			
General Commen									Weed swee	px			
The macroinvenable - Group 1 = E; - Group 2 = Ø; - Group 3 = I; - Group 4 ≈ Ø; - Group 5 = A;	ecoptes ichopte OL.D (G sellus	opnera (3-tails) - no ra Sastropoda (r) - note one that Vigocher	that ta tails mu ta, and	ils may b ay be dar Diptera)	e damaged mageddurin	g sampling					Abunda 1-5 6-20 21-50 51-100 101+	1 2 3 4 5
	total nu			-	undance			rate grou	p below: (Abu	indance-	-Ab)		
Ephomeroptera			Empan.			Plecop	Cerac					Leuctra Ab	
			Rhithmassa Ab							- 500		Isaneda Ab	Section 1
		-	Heptega	taie Ab					Amahineanura Ab				
		£	ohemes	māt Ab		3							
			Qu	inis Ab		37.50			Anda Ab				
		Bacal	alestronistic Ab									Ninocras Ab	
			ners de					_				Plecop Ab	1
	-		her Eph			+		_					_
Tandas ofens	175	-			-	-		1777				Piecop. Ab	
Total no. of taxa Inchopteras		Total Report			0		o, of Taxa	2			ave Al	oundance	2
TOTAL SECTION		ssorivohidae.		G.0		Lumose			Chiconomida			Avellus	-
-		rateopockiee		4	B	NO THE PROPERTY.	-		Distriction	st(D) Ab		Abse	90
		Rhyaczobiel				Blacoshi			Simulidae (D) Ab			Fess (1-20)	1
		opotamidae./		-	1		e(G) Abl		Діствооб			Common	
100		mosphilde.		1	193		Attest (6) Ab		Tipulde		1	(>20)	
1211 500		ostomaticke/			4				Aratopogonidae (D) As		-		
		OSOTIATION !			1	Esemela			Other GOLD Ab MOTE: Asest must be			refus	
		ostomatidas A		1		Tubificidate	(O() Ab					111	
	Other]	richoptera Al	0									recorded absent if r	
Total no. of	1	Total Relati			-	Total no. o	STare 1		tal Relative Ab		1	are found	
Taxa		Abuntan	1 10				ATTENDED TO	79	and the same of the	and the same of	-		

NOTE Bacta is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Bacta is not counted in SSRS. See Appendix B for more details on how to identify Bacta.

Step.1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.



River:	Code:	Date:	Sample Taken By:
Douglas River -	IE_EA_09D020200	19/02/2019	Faith Wilson
Leeawn			
Sample Number:	Location:	Stream Order:	Grid Reference:
GR4	Granamore	1st order	S 99493 98934
	Commonage -		
	tributary stream of		
	Douglas river		
Velocity:	Clarity:	Colour:	Discharge:
Torrential	Very clear	None	Flood
Fast	Clear	Slight	Normal
Moderate	Slightly turbid	Moderate	Low
Slow	Highly turbid	High	Very low
Very Slow			Dry
			Recent flood
Modifications: N	Dominant Types:	Slope:	Geology:
Canalised	Bedrock	Low	Calcareous
Widened	Boulder (>128mm)	Medium	Siliceous
Bank erosion	Cobble (32 - 128mm)	High	Mixed
Arterial drainage	Gravel (8 - 32mm)	Very high	
	Fine gravel (2 - 8mm)		
	Sand (0.25mm – 2mm)		
	Silt (<0.25mm)		
Substratum	Substratum:	Degree of Siltation:	Depth of Mud:
Condition:			•
Compacted	Stoney bottom	Clean	None
Loose	Muddy bottom	Slight	<1cm
Normal	Mud over stones	Moderate	1-5cm
		Heavy	5-10cm
			>10cm
Litter:	Filamentous Algae:	Stream Flow:	Shading:
None	None	Riffle	High
Present	Present	Riffle/glide	Moderate
Moderate	Moderate	Slow flow	Low
Abundant	Abundant		None
Stock Access:	Sewage Fungus:	Sample Type (Mins):	Main Land Use
			Adjacent/Upstream:
Yes - from the	None	Kick sample - 3	Pasture
adjoining commonage			
	Present	Stone washing	Bog
	Moderate	Weed sweep	Forestry
	Abundant		Tillage
			Urban
			Other - wet
			grassland/wet heath



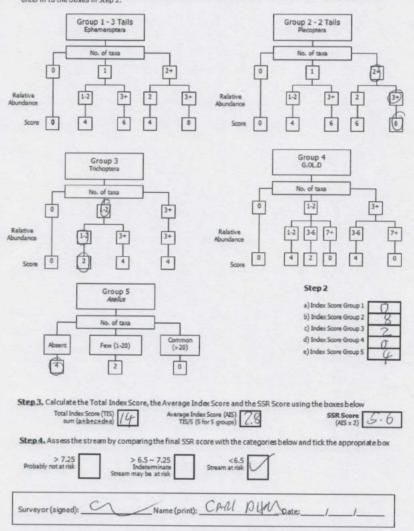
Plate 1. Photographic record of sampling location - GR4.

River:		Code:	10	Date:		Time:			
Station no. Locat			tion:			Grid (6 figure):			
		Stream Or	der:			Stream Bowt			
Reid O	emistry	Modification	es VIII Canali	usd-widened-bank		Riffle			
DO%	l l	arterial draina		MEN ORCHO MO-CHAIN	STUDIOS -	Riffle/Glide Slow flow			
DO mg/l		Dominant Ty	10051		-	200M LIOM			
Temp (°C)		- Bedrock							
Conductivity		Boulder (>128							
OH		Cobble (32-12)							
The state of the s		Gravel (8-32m							22.00
Bank width (cm)		Fine Gravel (2- Sand (0.25-2m					-		
Wet width (cm)		Sit (<0.25mm							
Avg Depth (cm)		THE RESERVE OF THE PARTY OF THE	A COLUMN TO SERVICE				100		
Staff gauge		Slope: Low -	The state of the s		1	Shading: High - H	oderate -	- Low-No	900
Velocity	Colour	Geology: Cal:	areous-Slices	ous-Mixed					
Tomential Fast	None Slight	Substratum (Condition: C	alcareous-Compact	nd-	Cattle access Yi up	ostream -	- downstra	earn or
Moderate Moderate	Moderate	Loose - Norma							
Slow	High	Substratums			-				
Very slow	-19/1			m-Mud over stones		Photo: Y / N			
Clarity	Discharge	Degree of silt	ration: Cean-	-Slight-Moderate-H	leavy				
Very clear	Flood	Death of mus	la Manay - Lev	m: 1-5cm: 5-10cm:	- 10m				
Clear	Normal	The state of the s		derate - Abundant					
Slightly turbid	Low	Filamentous		and the same of th	-	Sewage Fungus:		1	
	The state of the s	None - Present				None - Present - Mo		Abundant	
Highly turbid	Very Low	Main land use Pasture	Lith	Sample retained		Sampled in Minute	est	P	
	Recent Flood	Bug .	Till	age Y/N		Pond net x			
		Forestry	Oth			Stone wash x			
						Weed sweep x			
		Macroinverte	ebrate Co	mposition		Weed Sweep x	R	Relative	
The macroinventable Group 1 = E Group 3 = I Group 3 = I Group 4 = G	ales are divided into phemesoptess (2-tails) - ichoptess OLD (Gestospoda ceilus	s the following 5 s ills) – note that ta note that taks ma Oligochesta and	pecific groups is may be dar ry be damage Diptera)	s magedduring sam dduring sampling	ping		A 1-6-21 SI	Abunda -5 -20 1-50 1-100	nce 1 2 3
The macroinventable Group 1 = E Group 3 = I Group 4 = G Group 5 = A	altes are divided into phemesoptess (2-tails) - ichoptess (0-tails) - ichoptess (0-tails) - ceilus	s the following 5 s ills) – note that ta note that taks ma Oligochesta and	pecific groups is may be dar ry be damage Diptera)	s magedduring sam dduring sampling	ping	below: (Abundance-	A 1-6-21 SI	Abunda -5 -20 1-50	nce 1 2 3
The macroinventable Group 1 = E Group 2 = B Group 3 = II Group 4 = G Group 5 = A Calculate the	altes are divided into phemesoptess (2-tails) - ichoptess (0-tails) - ichoptess (0-tails) - ceilus	o the following 5 s ills) — note that ta note that talls mu (Oligocheeta and) so and relative ab Esobiominar Ab	pecific groups is may be da- ny be damage Diptera) undance of ea	s magedduring sam dduring sampling	ping		Ab) 1	Abunda -5 -20 1-50 1-100 01+	nce 1 2 3
The macroinventable Group 1 = E Group 2 = B Group 3 = II Group 4 = G Group 5 = A Calculate the	altes are divided into phemesoptess (2-tails) - ichoptess (0-tails) - ichoptess (0-tails) - ceilus	s the following 5 s ils) – note that ta note that taits mu Oligocheeta and sa and relative ab Esabonusus Ab Rhittoppens Ab	pecific groups is may be da- ny be damage Diptera) undance of ea	s maged during sam dduring sampling ach macnánvestebr	ping	belav: (Abundance-	Ab)	Abunda -5 -20 1-50 1-100 01+ octra Ab	nce 1 2 3
The macroinventable Group 1 = E Group 2 = B Group 3 = II Group 4 = G Group 5 = A Calculate the	altes are divided into phemesoptess (2-tails) - ichoptess (0-tails) - ichoptess (0-tails) - ceilus	s the following 5 s ifls) – note that ta- note that ta-is ma Oligocheeta and xa and relative ab Estimanumer Ab Entheropeas Ab Hectogeas Ab	pecific groups is may be da- ny be damage Diptera) undance of ea	s maged during sam dduring sampling ach macnánvestebr	ping	below: (Abundance-	Ab)	Abunda -5 -20 1-50 1-100 01+ octra Ab nuca Ab	nce 1 2 3
The macroinventable Group 1 = E Group 2 = B Group 3 = II Group 4 = G Group 5 = A Calculate the	altes are divided into phemesoptess (2-tails) - ichoptess (0-tails) - ichoptess (0-tails) - ceilus	s the following 5 s ife) – note that us note that uses ma Oligocheeta and sa and relative ab Esthyonumet Ab Rhichspacia Ab Heptagenaia Ab Esthermoniila Ab	pecific groups is may be da- ny be damage Diptera) undance of ea	s maged during sam dduring sampling ach macnánvestebr	ping	below: (Abundance-	Ab) Leu Bronners Abouthings	Abunda -5 -20 1-50 1-100 01+ cctra Ab parts Ab pure Ab	nce 1 2 3
The macroinventable Group 1 = E Group 2 = B Group 3 = II Group 4 = G Group 5 = A Calculate the	ares are chiefed into observations (2-tails) - shoopers (2-tails) - shoopers of Co.O ((instropoda nellur total number of tai	o the following 5 s. ilik) — note that calls manote the statement of the calls and the calls are calls are calls are called the ca	pecific groups is may be da- ny be damage Diptera) undance of ea	s maged during sam dduring sampling ach macnánvestebr	ping	below: (Abundance-	Ab) Leu Bronners Abouthings	Abunda -5 -20 1-50 1-100 01+ octra Ab nuca Ab	nce 1 2 3
The macroinventable Group 1 = E Group 2 = B Group 3 = II Group 4 = G Group 5 = A Calculate the	altes are divided into observations of the observations	iche following 5 nicht – note that tall manote that talls manote the talls manote that talls manote that talls manote the talls manote that talls manote that talls manote the talls manote that tall	pecific groups is may be da- ny be damage Diptera) undance of ea	s maged during sam dduring sampling ach macnánvestebr	ping	below: (Abundance-	Ab) Lev Abo: Abo: Abo: Abo: Abo: Abo: Abo: Abo:	Abunda 5 -20 1-50 1-100 01+ octra Ab ocera Ab ocera Ab ocera Ab ocera Ab	nce 1 2 3
The macroinventable Group 1 = 8 Group 2 = 8 Group 3 = 11 Group 4 = 6 Group 5 = A Calculate the	altes are clivided incophemeroptess (3-tails)-infontess; (3-tails)-infon	o the following 5 siths - note that ta- note that tails ma- Oligochesta and sa and relative ab- Esthionument Ab- Ribettospecia Ab- Esthionument Ab- Esthionum Ab-	pecific groups is may be da- ny be damage Diptera) undance of ea	s maged during sam dduring sampling ach macnánvestebr	ping	below: (Abundance-	Ab) Lev Abor Aborases Anotheres	Abunda 5 -20 1-50 1-100 01+ octra Ab ocera Ab ocera Ab ocera Ab ocera Ab	nce 1 2 3
The macroinventable Group 1 = 8 Group 2 = 8 Group 3 = 11 Group 4 = 6 Group 5 = A Calculate the	altes are clivided incophemeroptess (3-tails)-infontess; (3-tails)-infon	iche following 5 nicht – note that tall manote that talls manote the talls manote that talls manote that talls manote the talls manote that talls manote that talls manote the talls manote that tall	pecific groups is may be da- ny be damage Diptera) undance of ea	s maged during sam dduring sampling ach macnánvestebr	ping	below: (Abundance-	Ab) Les Abor Abor Acor Aco	Abunda -5 -20 1-50 1-100 01+ cons Ab cons	nce 1 2 3
the macroinvertable Group 1 = E Group 2 = B Group 3 = T Group 3 = C Group 4 = G Group 5 = A Calcular Debrineropherae	ares are clivided incoherence content (2-tails) - (4-tails) - (4-t	o the following 5 siths - note that ta- note that tails ma- Oligochesta and sa and relative ab- Esthionument Ab- Ribettospecia Ab- Esthionument Ab- Esthionum Ab-	pecific groups is may be dainy be damage. Diptera) undance of ea	s magedduring sampling dduring tampling ach macrainverseb fecopteeas	pling	belav: (Abundance-	Ab) Les descriptions de la contraction de la co	Abunda -5 -20 1-50 1-100 01+ conda Ab conda Ab	nce 1 2 3
he macroinvenable Group 1 = Es Group 2 = B Group 3 = D Group 3 = C Group 3 = C Group 5 = A Total no. of taxa	Parties are chiefed into obtention parties are chiefed into obtention parties and opposite (2 - zais) - is hospital and obtention parties are it is hospital and obtention parties are it is total number of tail and obtention parties are it is a second or in the control of the control of tail and obtention parties are in the contro	o the following 5 is ideal more than taken note that taken no Oligochesta and sa and relative ab Ecohomunist Ab Rhithopana Ab Heorogenia Ab Ecohomunist Ab Gleen's Ab Alexandrichia Ab Internation Ab International Ab Internati	pecific groups is may be dair y be damage. Diotera) Undance of ea	s magedduring sampling dduring tampling ach macrainversebr faccopteras	pling stegroup	below: (Abundance-	Ab) Les disconnection de la connection	Abunda -5 -20 1-50 1-100 01+ wcba Ab conda Conda Ab conda Conda Ab conda Conda Conda Conda conda Conda Conda Conda conda Conda Conda Conda Conda conda Conda Conda Conda Conda Conda conda Conda Conda Conda Conda conda Conda Conda Conda Conda Conda conda Conda Conda Conda Conda Conda Conda Conda Conda conda Conda Conda Conda Conda Conda Conda Conda conda Conda	nce 1 2 3
he macroinvenable Group 1 = Es Group 2 = B Group 3 = D Group 3 = C Group 3 = C Group 5 = A Total no. of taxa	ares are clivided incoherence content (2-tails) - (4-tails) - (4-t	to the followings is with a mote that take man office that take man office the take man office that take take the take man office that take the take take take take take take take tak	pecific groups is may be daily	s magedduring sam dduring sampling schmacroinvertebr fecopteras stall no. of Taxaa shinee (5) Abi	pling stegroup	below: (Abundance-	Ab) Les disconnection de la connection	Abunda -5 -20 1-50 1-100 01+ octra Ab octra Ab	/ / / / / / / / / / / / / / / / / / /
The macroinvenable Group 1 = E ₁ Group 2 = B Group 3 = G Group 3 = G Group 5 = A Group 5 = A Group 5 = A Group 5 = A Total no. of taxa	ares are clivided incoherence cotes (2-tails) - (2-tai	o the followings is with a more that take ma office that take marked that take the take marked take marked that take marked	pecific groups be dated by the damage of the	s maged during sample douring tamping sample sampling schmacrainventible fecopitees: octal no. of Texas mines (G) Abias apage	pling stegroup	belav: (Abundance-	Ab) Lev Abo) Lev Aborboses Alono Orber Ple Scher Ples Abundeses Alono Abundeses Alono Abundeses Alono Abundeses Alono Abundeses Alono Abundeses Abundeses Abundeses	Abunda 5 20 1-50 1-100 1-	nce 1 2 3 4 5 5 1 1 3
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The macroinvenable Group 1 = E ₁ Group 2 = B Group 3 = G Group 3 = G Group 5 = A Group 5 = A Group 5 = A Calculate the phomeropiteral	altes are cliveded incoherenceptess (2-tails)-inhotosts. C.C. D (Sestingoda elli)-inhotosts. C.C. D (Sestingoda elli)-inhotosts. Sotal number of tail Bha capital Rolly and Rol	to the followings is with a more that take ma (Oligochesta and take ma (Oligochesta Abbandence) Abbandence (Oligochesta Abbandence) Abbandence (Oligochesta Abbandence) (G.Oligochesta and G.Oligochesta and G.Olig	pecific groups to damage by be damage by the damage of each by the damage by	singgedduring sampling dduring sampling ach macroinverselveras singer (G. Ab abugur (G. Ab	pling stegroup	below: (Abundance-	Ab) Les Sin	Abunda 5 20 1-50 1-100 1-	nice 1 2 3 5 5 1 1 1 3
The macroinvenable Group 1 = E ₁ Group 2 = B Group 3 = G Group 3 = G Group 5 = A Group 5 = A Group 5 = A Calculate the phomeropiteral	altes are chiefed into phemicroptes (2-tails) - shootes (2-tails)	o the followings is with a more that take ma office that take manufactured that take the take manufactured that take take take take take take take ta	pecific groups pecific groups pecific groups pecific groups pecific may be damage Diptera) undance of as Parameter pecific pec	s maged during sample goduring godu	31 C	belav: (Abundance-	Ab) Les Sin	Abunda 5 20 1-50 1-50 1-100 01+ Abunda Ab Duca Ab Du	nice 1 2 3 5 5 1 1 1 3
The macroinvenable Group 1 = E ₁ Group 2 = B Group 3 = G Group 3 = G Group 5 = A Group 5 = A Group 5 = A Group 5 = A Total no. of taxa	antes are chiefed recoherence (2-tails) - inhocease a copress	o the followings is site)—note that take note that take not tak	pecific groups of the damage o	ampedduring sampling achine tampling achine ta	31 C	below: (Abundance-	A 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1-	Abunda 5 20 1-50 1-50 1-100 01+ cotta Ab cotta Ab musa Ab mu	nce 1 2 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
The macroinvenable Group 1 = E ₁ Group 2 = B Group 3 = G Group 3 = G Group 5 = A Group 5 = A Group 5 = A Group 5 = A Total no. of taxa	altes are cliveded incoherence (2-tails) - inhotostal inhot	o the followings is with a more that take ma office that take marked that take the take marked that take take take take take take take ta	pecific groups pecific groups pecific groups pecific groups pecific may be damage Diptera) undiance of each pecific pe	maged during sampling achine rampling ramp	31 C	belav: (Abundance-	A 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1-	Abunda 5 20 1-50 1-100 01+ 1-100 01+ Abunda Ab Dusta Ab Dusta Ab Bosta Ab ECOR AB ECO	nce 1 2 3 4 5 5
The macroinvenable Group 1 = E ₁ Group 2 = B Group 3 = G Group 3 = G Group 5 = A Group 5 = A Group 5 = A Group 5 = A Total no. of taxa	altes are chiefed in the phenomeroptera (3-ta- electromeroptera (3-ta- electro	s the followings is size—note that take ma (Oligocheeta and size and relative ab Exthonous Ab Exthonous Ab Exthonous Ab Exthonous Ab Exthonous Ab	pecific groups pecific groups pecific groups pecific groups pecific may be damage Diptera) undiance of each pecific pe	ampedduring sampling achine tampling achine ta	31 C	below: (Abundance-	Ab) Leu Ab) Leu Abortoses imphises Abortoses imphises Abortoses imphises Abortoses	Abunda 5 20 1-50 1-50 1-100 01+ cotta Ab cotta Ab musa Ab mu	nice 1 2 3 4 4 5 1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Group 2 = B Group 3 = I Group 4 = G Group 5 = A Calculate the	altes are cliveded incoherence (2-tails) - inhotostal inhot	o the followings is with a construction of the tails may office that tails may office the tai	Decise groups on the second of	maged during sampling achine rampling ramp	31 C	below: (Abundance-	A Level 1 Leve	Abunda 5 20 1-50 1-50 1-150 1-150 01+ wenu Ab beeda Ab	nice 1 2 3 4 4 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

NOTE Bacts is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Bacts is not counted in SSRS. See Appendix B for more details on how to identify Bacts.

GR4

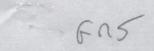
Step.1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.



River:	Code:	Date:	Sample Taken By:
Douglas River -	IE_EA_09D020200	19/02/2019	Faith Wilson
Roundhill Brook			
Sample Number:	Location:	Stream Order:	Grid Reference:
GR5	Granamore	2 nd order	S 99339 99273
	Commonage -		
	Roundhill Brook -		
	Tributary stream of		
	Douglas river		
Velocity:	Clarity:	Colour:	Discharge:
Torrential	Very clear	None	Flood
Fast	Clear	Slight	Normal
Moderate	Slightly turbid	Moderate	Low
Slow	Highly turbid	High	Very low
Very Slow			Dry
			Recent flood
7.7.40			
Modifications: N	Dominant Types:	Slope:	Geology:
Canalised	Bedrock	Low	Calcareous
Widened	Boulder (>128mm)	Medium	Siliceous
Bank erosion	Cobble (32 - 128mm)	High	Mixed
Arterial drainage	Gravel (8 - 32mm)	Very high	
	Fine gravel (2 - 8mm)		
	Sand (0.25mm - 2mm)		
	Silt (<0.25mm)		
Substratum	Substratum:	Degree of Siltation:	Depth of Mud:
Condition:	Substratum.	Degree of Sittation.	Depth of Mud.
Compacted	Stoney bottom	Clean	None
Loose	Muddy bottom	Slight	<1cm
Normal	Mud over stones	Moderate	1-5cm
TTOTALL	Titud over stories	Heavy	5-10cm
		Tieuvy	>10cm
			10011
Litter:	Filamentous Algae:	Stream Flow:	Shading:
None	None	Riffle	High
Present	Present	Riffle/glide	Moderate
Moderate	Moderate	Slow flow	Low
Abundant	Abundant		None
Stock Access:	Sewage Fungus:	Sample Type (Mins):	Main Land Use
			Adjacent/Upstream:
Yes - from the adjoining commonage	None	Kick sample - 3	Pasture
, 0	Present	Stone washing	Bog
	Moderate	Weed sweep	Forestry
	Abundant	1	Tillage
			Urban
			Other - wet
			grassland/wet heath



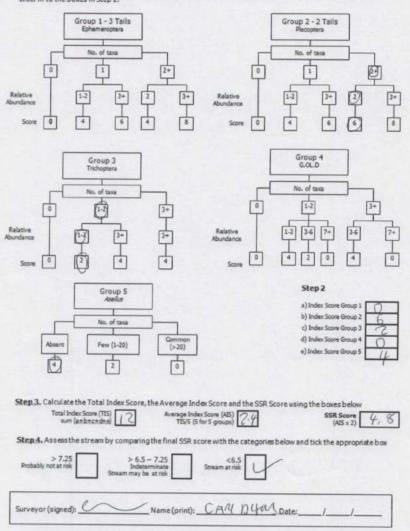
Plate 1. Photographic record of sampling location - GR5.



River:		Code:	Date		Time:				
Station no.		Location:	Delice		Grid (6 figure);				
		Stream Or	don		Stream flow:				
					9.6%a				
Field Ch	nemistry		s: Y/N Canalised-wid	sened-bank erosion-					
DO mg/l		Dominant Ty			Slowflow				
Temp (*C)		Bedrock							
Conductivity		Boulder (> 128 Cobble (22-128	mm)						
off		Cobble (32-128	lmm)						
		Gravel (8-32m)							
Bank width (cm)		Fine Gravel (2- Sand (0.25-2m	emm)						
Wet width (cm)		Silt (<0.25mm							
Aug Depth (cm)		Slope Low - 1	Medium - High - Ve	or Mich					
Staff gauge Velocity				Shading: High - Moder	ate - Low-No	one			
Torrential	Tolour None		amous-Sliceous-Ho		-				
Fast	Slight	Substratum (onditions Calcared	sus-Compacted-	Cattlie access Y: upstres	m - downstn	sam or N		
Moderate	Moderate	Loose - Normal Substraturu							
Sow	High		Muddy bottom-Mud	over stones	Photo: Y / N				
Very slow Clarity	Dischause		ation: Clean-Slight						
Very dear	Discharge Flood								
			It None: <1cm; 1-5c						
Clear	Normal	Litter: None -	Present - Moderate	- Abundant					
Slightly turbid	Low	Filamentous /	Vigues		Sewage Fungus:				
	37.00	None - Present	- Moderate - Abuno		None - Present - Moderar	te-Abundans			
Highly turbid	Wery Low Dry	Main land use Pasture	Urban	Sample	Sampled in Minutess	W. Free			
	Recent Flood	Bog	Tillage	retained: Y/N	Pondinet x				
		Forestry	Other	7.00	Stone wash x				
General Commen					Weed sweep x				
Group 1 = E Group 2 = B Group 3 = I Group 4 = G	i.OL.D (Gastropoda Iselfur	is) – note thattai note that tails ma Oligochesta, and I	is may be damaged y be damaged durin Diptera)	g sampling		Abunda 1-5 6-20 21-50 51-100 101+	1 2 3 4 5		
Ephemeroptera:	e total number of tax				up below: (Abundance - Ab)				
- province squaded	-	Estilyansusus Ab Ribithssaese Ab	Plecop	vecas		LeumaAb	Ry		
		Heptageois Ab		-		Isoperia Ab	-		
		THE RESERVE AND ADDRESS OF THE PARTY OF THE				пеписа Аь			
	-	Enhanacelle Ab		_	Anob	inamura Ab			
	-	QienirAb				About Ab	10		
		leathahlabia Ab			- 6	NoozarAb			
		mera dispisa Ab			Other	Plecop Ab			
		other Ephem Ab			Other	Riecop Ab	7		
Total no. of taxa	Total Rese	thre Atlantance	Total no	o. of Taxa	Z. Total Relative Al	bundance	-		
Inchoptera:	Hydropsychide	Ab G.OL	.D: (xmoen	e(G) Ab	Chimocornidae (D) Ab	Asollus			
	Rolycentoppodidae	Ab	Assamopygu		Chironomus(0) Ab	Abser	110		
	Rhizmohii		Elanorde		Simulidae (D) Ab	Few (5-20)	1		
	Philopotamidae		draile	r(G) Ab	Dictiacocca (D) Ab	Common	-		
	Limnephilidae		Physi	r(G) Ab	Tipulicae (D) Ab	(>20)			
	Sericostomanidae		Lumboculus		Astahopogonidas (n) ne				
	Glossosomatidas		Esecuela	(DI) Abi	Other GOLD Ab	NOTE: As	elus		
	Lapidostomatidas		Iublicdae	(O() Ab	must be				
Total or of	Other Trichopters.	-				recorded a absent if n	one		
Total no. of	Total Retel		Total no. o	fTaxa ()	Intal Relative Assessment (*)	are found			
T-MARKET	Administra		The second secon	1/	Market Market Haller Street Land 19 (19)				

NOTE Bacts is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Bacts is not counted in SSRS. See Appendix B for more details on how to identify Bacts.

Step 1. Calculate the Index Score by circking the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.



River:	Code:	Date:	Sample Taken By:
Douglas River	IE_EA_09D020200	19/02/2019	Faith Wilson
0		.,.,.,	
Sample Number:	Location:	Stream Order:	Grid Reference:
GR6	Granamore	2 nd order	S 98603 99290
	Commonage - below		
	the confluence of		
	Roundhill Brook and		
	Douglas river		
Velocity:	Clarity:	Colour:	Discharge:
Torrential	Very clear	None	Flood
Fast	Clear	Slight	Normal
Moderate	Slightly turbid	Moderate	Low
Slow	Highly turbid	High	Very low
Very Slow			Dry
			Recent flood
Modifications: N	Dominant Types:	Slope:	Geology:
Canalised	Bedrock	Low	Calcareous
Widened	Boulder (>128mm)	Medium	Siliceous
Bank erosion	Cobble (32 - 128mm)	High	Mixed
Arterial drainage	Gravel (8 - 32mm)	Very high	IVIIXCU
Tirteriai aramage	Fine gravel (2 - 8mm)	very mgn	
	Sand (0.25mm – 2mm)		
	Silt (<0.25mm)		
Substratum Condition:	Substratum:	Degree of Siltation:	Depth of Mud:
Compacted	Stoney bottom	Clean	None
Loose	Muddy bottom	Slight	<1cm
Normal	Mud over stones	Moderate	1-5cm
		Heavy	5-10cm
			>10cm
Litter:	Filamentous Algae:	Stream Flow:	Shading:
None	None	Riffle	High
Present	Present	Riffle/glide	Moderate
Moderate	Moderate	Slow flow	Low
Abundant	Abundant		None
Ct1. A	Comment	C1- TP /3 #* \	Material 177
Stock Access:	Sewage Fungus:	Sample Type (Mins):	Main Land Use Adjacent/Upstream:
Yes - from the	None	Kick sample - 3	Pasture
adjoining commonage		- Item oumpie	I dotaic
) -	Present	Stone washing	Bog
	Moderate	Weed sweep	Forestry - recent
		r	clearfell
	Abundant		Tillage
			Urban
			Other - wet
			grassland/wet heath



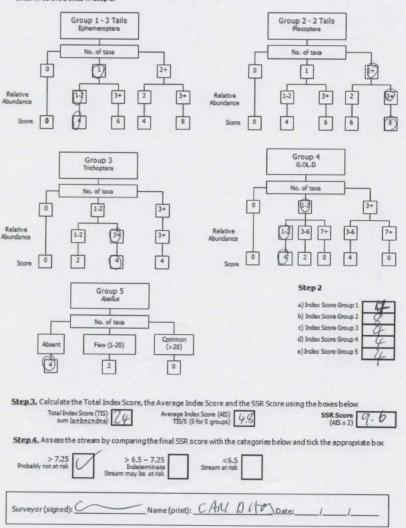
Plate 1. Photographic record of sampling location - GR6.



		Code:	Date:	Time:			
Station no.		Location:		Grid (6 figure):			
		Stream Order:			Stream flows		
EART	emistry	Modifications: Y/N			Riffle		
DOS:	minsery	arterial drainage	Caraisio-watere	Riffle/Glide Slow flow			
Tom OC		Dominant Types:			SIOW FIOW		
Temp(°C)		- Bedrock					
Conductivity		Boulder (> 128mm)					
old		Cobble (32-126mm) Gravel (8-32mm)					04.
Bank width (cm)		Fine Gravel (2-8mm)					
Wet width (cm)		Send (0.25-2mm)					
Aug Depth (cm)		Sit (<0.25mm)					
		Slope: Low - Mediu	m - High - Very H	gh .	Shading: High - Ho	-	
Staff gauge Velocity	Colour	Geology: Calcansou	s-Sliceous-Mired		anading: mgn - mc	operate - Low-16	one
Tomential	None	Substratum Condi	tion Colomous C	-bernamed	Cattle access Y: up	stream - downers	sam or 7
Fast	Slight	Loose - Normal	THE SECRETARY OF	or (Brenner	and the second second		
Moderate Slow	Moderate High	Substratume	District Control				
Very slow	ngo	Stoney bottom-Mudo	ly bottom-Mud ove	rstones	Photo: Y / N		
Clarity	Discharge	Degree of siltation	r: Clean-Slight-Mod	erate-Heavy			
Very clear	Flood	Depth of mud: Nor	ner « Lone 1-Some S	-10cm: >10cm			
Clear	Normal	Litter: None - Prese	ent - Moderate - Ab				
Slightly turbid	Low	None - Present - Mo	dames should be		Sewage Fungus:		
Highly turbid	Very Low	Main land use u/s		ample	None - Present - Mox Sampled in Minute		
	Dry	Pasture	Urban In	stained:	Pond net x		
	Recent Flood	Bog		/ 10	Stone wash x		
-		Forestry	Other		Weed sweep x		
		Macroinvertebra	te Composit	ion		Relative	
Group 1 = E Group 2 = 2 Group 3 = 3 Group 4 = 6 Group 5 = A	rates are divided ine phemosoptera (2-tails)- ischoptera (CL.D (Gestropoda seilus	o the following S specific sits) – note that tails may note that tails may be of Oligochesta and Dipear	c groups ly be damagedduri damagedduring sa la)	ng sampling mpling		Abunda 1-5 6-30 21-50 51-100	nce
Group 1 = E Group 2 = 2 Group 3 = 3 Group 4 = 6 Group 5 = A	rates are divided ine phemosoptera (2-tails)- ischoptera (CL.D (Gestropoda seilus	o the following S specific sits) – note that tails ma note that tails may be o	c groups ly be damagedduri damagedduring sa la)	ng sampling mpling	p below: (Abundance-	Abunda 1-5 6-30 21-50 51-100	nce 1 2 3
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	rates are divided ine phemosoptera (2-tails)- ischoptera (CL.D (Gestropoda seilus	o the following S specific sits) – note that tails may note that tails may be of Oligochesta and Dipear	c groups ly be damagedduri damagedduring sa la)	ng sampling mpling overtebrate grou	p below: (Abundance-	Abunda 1-5 6-30 21-50 51-100	nce
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	rates are divided ine phemosoptera (2-tails)- ischoptera (CL.D (Gestropoda seilus	o the following S specificals:) – note that tails manote shar tails may be on the following and bipter was and relative abundants:	c groupe y be damaged duri famaged during sa sa) ros of each macros	ng sampling mpling overtebrate grou	p below: (Abundance	Abunda 1-5 6-30 21-50 51-100 101+ Leuctre Ab	nce
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	rates are divided ine phemosoptera (2-tails)- ischoptera (CL.D (Gestropoda seilus	o the following S specificals) – note that tails manous that tails may be on Oligochesta and Dipterson and relative abundar Esthonuser Ab	c groupe y be damaged duri famaged during sa sa) ros of each macros	ng sampling mpling overtebrate grou		Abunda 1-5 6-30 21-50 51-100 101+	nce
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	rates are divided ine phemosoptera (2-tails)- ischoptera (CL.D (Gestropoda seilus	o the following 5 specificals) - note that tails manous that tails may be on Oligochesta and Dipterios and relative abundar Esthomaser Ab Rhithspaene Ab	c groupe y be damaged duri famaged during sa sa) ros of each macros	ng sampling mpling overtebrate grou	8	Abunda 1-5 6-30 21-50 51-100 101+ Leuctre Ab Escontis Ab	nce 1 2 3 4 5 5
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	rates are divided ine phemosoptera (2-tails)- ischoptera (CL.D (Gestropoda seilus	o the followings specificity— note that tails manous that tails may be. Oligochesta and Dipessor and relative abundar Estitionsurat Ab Estitionsurat Ab Hepraparai Ab	c groupe y be damaged duri famaged during sa sa) ros of each macros	ng sampling mpling overtebrate grou	8	Abunda 1-5 6-20 21-50 51-100 101+ Ab) Leuctre Ab	nce 1 2 3 4 5 5
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	rates are divided inc phismeropera; (2-tales) - inchaptera; (3-tales) - inchaptera; (3-tales) - (3-tales) - (4-tales) - (4-tal	or the following 5 specific site) – note that talk may be or Oligochesta, and Diotes- so and relative abunda. Estimates Ab Rhetmosens Ab Federagenia Ab Calenta Ab Calenta Ab	c groupe y be damaged duri famaged during sa sa) ros of each macros	ng sampling mpling overtebrate grou	8	Abunda 1-5 6-20 21-50 51-100 101+ Louctre Ab Boonnie Ab Boonnie Ab Boonnie Ab Boonnie Ab	nce 1 2 3 4 5 5
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	rates are dividual incohemosopoea, (2-to-iscoptiena (2-ta-is)-iscoptiena (2-ta-is)-ischoptera (2-ta-is)-ischoptera (2-ta-is)-ischoptera (20L.D) ((issupposoda serilus e total number of ta	or the following S specificals:—note that tails manned that tails may be a Oligocheeta, and Dispasson and relative abundles. Estimonerus Ab. Richtsquene Ab. Heccapenie Ab. Calents Ab. alesstrochishie Ab. alesstrochishie Ab.	c groupe y be damaged duri famaged during sa sa) ros of each macros	ng sampling mpling overtebrate grou	å Æ	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Boontie Ab Pototoestuse Ab Ania Ab Discozas Ab	nce 1 2 3 4 5 5
Group 1 = £ Group 2 = 8 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the	altes are divided (inc.) phermospheres (2-dails) - inchoptera inch	or the following 5 specifics in one of the trains may be of the second s	c groupe y be damaged duri famaged during sa sa) ros of each macros	ng sampling mpling overtebrate grou	. 8 At	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Bootenius Ab Botherius Ab Dihoras Ab Dihoras Ab	nce 1 2 3 4 5 5
Group 1 = 2 Group 2 = 2 Group 3 = 3 Group 3 = 3 Group 4 = 6 Group 5 = A Calculate th	altes are divided for observations (2-calls) - circosteres (2-calls) - circosteres (2-calls) - circosteres (3-calls) - circost	or the following S specifically—note that tails may be a clipsochesta and Dipterson and relative abundar. Extheorems Ab. Shetmourner Ab. Other Epheem Ab. Other Epheem Ab.	cycupe y be damagedduring damagedduring sa sa) cs of eachmacroi Plescoptera	ng sampling mpling wertebrate grou		Abunda 1.5 6-20 21.50 51.100 101+ Lauctra Ab Booneda Ab Possionenuca Ab Bohinemuca Ab Almonas Ab	nce 1 2 3 4 5 5
Group 1 = 2 Group 2 = 2 Group 3 = 3 Group 4 = 6 Group 5 = 4 Calculate the	artes are divided incoherence personal divided incoherence personal (2-rails)-schoolstes (2-rails)-schoolstes (2-rails)-schoolstes personal (2-rails)-schoolstes (2-rails)-schoolstes (2-rails)-schoolstes (2-rails)-schools	or the following 5 specific sinic) – note that sails may be a Oligochesta, and Dipte- sic and relative abunda. Estimates Ab. Rhithmases Ab. Repaire Ab. Control Ab. Co	groups y be damagedduring sa y) ca of eachmacroi Plecopteea Total no. o	ng sampling mpling mpling invertebrate ground in invertebrate ground	d & & & & & & & & & & & & & & & & & & &	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Issansis Ab Patrician Ab Patrician Ab Dinoras Ab Dinoras Ab Deber Becop Ab her Blecop Ab her Abundance	nce 1 2 3 4 5 5
Group 1 = 2 Group 2 = 2 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the phemeropheras	alse are divided from photosopera (2-calis) - schoolses (2-calis) - schoolses (3-calis)	or the following 5 specific is not reliable to the first may be a common of the first may be a common o	cycupe y be damagedduring sa a) ca of eachmacroir Placosptees Lumnae (6)	ng sampling mpling mpling wertebrate groups	(O Total Relation (Disposeridae (Disposerid	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Boomfa Ab Stationensus Ab Stationensus Ab Stationensus Ab Stationensus Ab Stationensus Ab Abundance Janes Becomp Ab ther Becomp Ab ther Becomp Ab ther Abundance Janes Basilian	nce 1 2 2 4 5 4 5 4 7 2
Group 1 = 2 Group 2 = 2 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the phemeropheras	artis am divided in a divided problem opposes (2-bescotters (2-rails)-industrial conductors (3-rails)-industrial conductors (3	or the following S specific is not	young you have a second of the	ng sampling mpling mpling retriebrate ground in the sampling i	(Control Relations) Ab Chironomides (D) Ab	Abunda 1-5 1-50 21-50 51-100 101+ Lauctra Ab Isoonata Ab Isoonas Ab Onoras Ab Onoras Ab Onoras Ab Onoras Ab Onoras Ab Aboer Biscop Ab ther Biscop Ab Aboer Biscop Ab Aboer Ab	1 2 4 5 GO
Group 1 = 2 Group 2 = 2 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the phemeropheras	ares are divided incoherence press. Jennifer Strategy (2-rails)- Construct (2-rails)- Construct (2-rails)- Construct (2-rails)- Construct (2-rails)- Construct (2-rails)- Experiment (2-rails)- Experi	or the following S specific is not office of the status may be a clipsochesta and Dipterson and relative abundant Estimater Ab Retelement Ab Heccapenia Ab Estatement Ab Asiestonolishis Ab emera daniga Ab Other Epitem Ab steve Assessment (RAB) G.O.D. De a Ab	Company of the compan	ng sampling mpling overrebrate ground in the same state of the sam	(O Total Relati Chinoconides (D) Ab Chinoconides (D) Ab	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Isonotis	1 2 4 5 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Group 1 = 2 Group 2 = 2 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the phemeropheras	artis am divided in a divided problem opposes (2-bescotters (2-rails)-industrial conductors (3-rails)-industrial conductors (3	or the following S specific is not reliable to the first state may be a company to the first state of the fi	Total no. a Lymnae (6 Another (3 Another (3) Another (3 Another (3) Another (3)	ng sampling mpiling mpiling wentebrate ground in the sampling	Total Relation (Chironomidea (D) Ab Chironomy (D) Ab Simulidea (D) Ab Distracog (D) Ab	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Boonnia Ab Bothinemura Ab Bother Blecop Ab ther Blecop Ab ther Blecop Ab Abose Abose Abose Abose Acompany Abose Acompany Acompany Acompany Acompany Acompany Acompany Acompany	1 2 4 5 4 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Group 1 = 2 Group 2 = 2 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the phemeropheras	alse are divided for observations (2-calls) includes (2-calls) includes (3-calls) include	or the following 5 specific is not	Plecopters Total no. of Assamby yas (6) Blanchie (6) Assamby yas (6) Blanchie (6) Assamby yas (6)	ng sampling mpling mpling mpling mpling mpling mentebrate ground for the management of the management	Total Relation Total Relation (i) Ab Ghitmonra(i) Ab Simulidae (D) Ab Attention (D) Ab Tipudite (D) Ab	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Isonotis	nce 1 2 4 5
Group 1 = 2 Group 2 = 2 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the phemeropheras	alse am divided for a large production of the control of the contr	or the following S specific is not	Total no. of Lumbratus (5) Abouts (5) Abouts (5) Lumbratus (7) Lumbratus (7) Lumbratus (8) Lumbratus (8) Lumbratus (8) Lumbratus (8) Lumbratus (8) Lumbratus (8)	ng sampling mpling overrabrate ground in the same state of the sam	Total Relation (Chironomidea (D) Ab Chironomy (D) Ab Simulidea (D) Ab Distracog (D) Ab	Abunda 1-5 1-50 21-50 51-100 101+ Lauctra Ab Isoonata	nce 1 2 3 4 5 5 4 7 2 4 0
Group 1 = 2 Group 2 = 2 Group 3 = 1 Group 4 = 6 Group 5 = A Calculate the phemeropheras	ares are divided for observations (2-rails) - cleanages (2-rails)	or the following S specific is in a constraint of the constraint o	Plecopters Total no. of Assamby yas (6) Blanchie (6) Assamby yas (6) Blanchie (6) Assamby yas (6)	ng sampling mpiling mpiling mpiling mpiling inventebrate ground in the sampling inventebrate ground in the sampling inventebrate ground in the sampling in the	Total Relation (O) Total Relation (D) Ab Simuliata (D) Ab Dictanos (D) Ab	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Isonotia Ab Potomorius About Abo	nce 1 2 3 4 4 5 5 7 2
Group 1 = 2 Group 2 = 2 Group 3 = 3 Group 4 = 6 Group 5 = A Calculate the Calculate th	alse are divided for observations (2-rails)-incontrate (2-rails)-incontr	or the following S specific is in a constraint of the constraint o	Total no. of Lumboude (5) Aposto (6) Aposto	ng sampling mpiling mpiling mpiling mpiling inventebrate ground in the sampling inventebrate ground in the sampling inventebrate ground in the sampling in the	Total Relation (O) Total Relation (D) Ab Simuliata (D) Ab Dictanos (D) Ab	Abunda 1-5 1-50 21-50 51-100 101+ Lauctra Ab Isoonida	nce 1 2 1 4 5
Group 1 = 2 Group 2 = 2 Group 3 = 3 Group 4 = 6 Group 5 = A Calculate th	ares are divided for observations (2-rails) - cleanages (2-rails)	or the following S specific is not	Total no. of Lumboude (5) Aposto (6) Aposto	ng sampling mpling mpling retriebrate ground of the sampling of the sampling retriebrate ground of the sampling of the sampling retriebrate ground of the sampling of the sampling retriebrate ground retriebrate ground of the sampling retriebrate ground of the sampling retriebrate ground of the sampling retriebrate ground retriebrate	Total Relation (O) Total Relation (D) Ab Simuliata (D) Ab Dictanos (D) Ab	Abunda 1-5 6-20 21-50 51-100 101+ Leuctre Ab Isonotia Ab Potomorius About Abo	The Contraction of Co

NOTE *Bacts* is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that *Bacts* is not counted in SSRS. See Appendix B for more details on how to identify *Bacts*.

Step.1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from *each macroinvertebrate group* calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.



River:	Code:	Date:	Sample Taken By:
Douglas River	IE EA 09D020200	19/02/2019	Faith Wilson
2 cugius inver	12_21_0, 2 0 20 20 0	15, 62, 2615	Turiur ((Index)
Sample Number:	Location:	Stream Order:	Grid Reference:
GR7	Granamore	2 nd order	S 98265 00112
Cit	Commonage - Douglas	2 order	3 70200 00112
	River - below the ford		
	at Cordoo/Corragh		
Velocity:	Clarity:	Colour:	Discharge:
Torrential	Very clear	None	Flood
Fast	Clear	Slight	Normal
Moderate	Slightly turbid	Moderate	Low
Slow	Highly turbid	High	Very low
Very Slow		8	Dry
, , , , , , , , , , , , , , , , , , ,			Recent flood
Modifications: Y	Dominant Types:	Slope:	Geology:
Canalised	Bedrock	Low	Calcareous
Widened	Boulder (>128mm)	Medium	Siliceous
Bank erosion	Cobble (32 - 128mm)	High	Mixed
Arterial drainage	Gravel (8 - 32mm)	Very high	
Stone ford created	Fine gravel (2 - 8mm)	7 0	
upstream			
•	Sand (0.25mm – 2mm)		
	Silt (<0.25mm)		
Substratum	Substratum:	Degree of Siltation:	Depth of Mud:
Condition:		8	1
Compacted	Stoney bottom	Clean	None
Loose	Muddy bottom	Slight	<1cm
Normal	Mud over stones	Moderate	1-5cm
		Heavy	5-10cm
			>10cm
Litter:	Filamentous Algae:	Stream Flow:	Shading:
None	None	Riffle	High
Present	Present	Riffle/glide	Moderate
Moderate	Moderate	Slow flow	Low
Abundant	Abundant		None
Stock Access:	Sewage Fungus:	Sample Type (Mins):	Main Land Use
			Adjacent/Upstream:
Yes - from the	None	Kick sample - 3	Pasture
adjoining commonage			
	Present	Stone washing	Bog
	Moderate	Weed sweep	Forestry - recent
			clearfell
	Abundant		Tillage
			Urban
			Other - wet
			grassland/wet heath

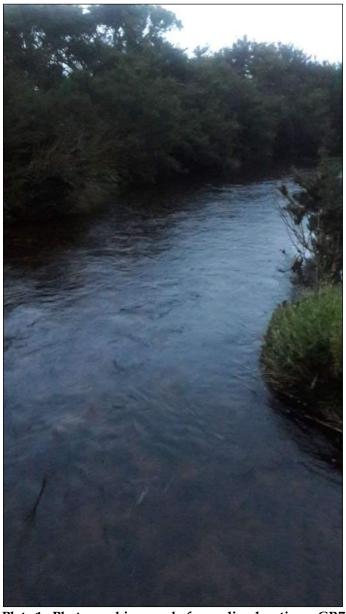


Plate 1. Photographic record of sampling location - GR7.

River:		Code:	Date:			Time:			
Station no.		Location:		Grid (6 figure):					
		Stream Or		Stream flow:					
Field On	emistry	Modification	st Y/N Carralised-wid	ened basis e		Riffle			
D0%	T. T	arterial drainas		E SU DE ICE		Riffie/Glide Slow flow			
DO mg/l		DominantTy	pes:		1	200111011			
Temp (*C)		Bedrock			-			_	
Conductivity		Boulder (> 128 Cobble (32-12)	mm)		-				
oH Ho		Gravel (8-32m)			-		_	-	
Bank width (on)		Fine Gravel (2-			-		-	1	
Wet width (cm)		Sand (0.25-2m	Sand (0.25-2mm)						
Aug Depth (cm)		Sit (<0.25mm			-				
Staff gauge		Slope: Low - Medium - High - Very High				FE-20-10-10-10-10-10-10-10-10-10-10-10-10-10	-		
Velocity	Colour	Geology: Calc	areous-Silceous-Min	ed	343	Shading: High-	Moder	KR-LOW-N	one.
Torrential	None		Conditions Calcareo		4	Cattle access Y:	upstrea	ım - downstr	eam or N
FASE	Stight	Loose - Normal		us-conpact			100	A CONTRACTOR OF THE PARTY OF TH	-
Moderate	Moderate	Substratum:							
Slow	High	Stoney bottom	-Muddy bottom-Mud	over stones		Photo: Y/N			
Very slow Clarity	Discharge	Degree of silt	cation: Clean-Slight-	Moderate-H	Mary				
Very disar	Flood	Denth of mus	None: <1cm: 1-5c	m E. I from	~ 10mm				
Clear	Normal		Present - Moderate		>1000				
	The state of the s	Filamentous		- Horacometric		Par water From Miles			
Slightly turbid	Low	None - Present	- Moderate - Abund	face		Sewage Fungus None – Present –	Modera	te-Abundan	
Highly turbid	Very Law	Main land use	10/6:	Sample		Sampled in Min			
	Dry	Pasture	Urban	retained		Pond net x			
	Recent Flood	Bog Forestry	Tillage	Y/N		Stone wash x			
		Porestry	Other			Weed sweep x			303
General Commen	Bit.				-	-			
Group 1 = E Group 2 = R Group 3 = I Group 4 = G Group 5 = A	rates are divided into phemesoptera (3-talis)-i (scoptera (2-talis)-i (dicoptera . OL.D (Gestropoda sellus	the following S s is) - note that us note that tails mu Oligochesta and	its may be damaged uy be damageddurin Diptera)	during samp g sampling				Relative Abunda 1-5 6-20 21-50 51-100 101+	
	total number of tax		undance of eachma	croinvertebo	atte group	below: (Abundano	e-Ab)		
Ephemeroptera:	_	Esthonus Ab	Plecop	terac				Leuctra Ab	2
	-	Rhithspassa Ab						Isopeda Ab	
		Heptageoia Ab						cooruse Ab	1
		Enbernecelle Ab					Amob	inemura Ab	
		Quenir Ab						Eleccia Ab	
	Asq	Ab ridelination					- 4	Dinocras Ab	
	Ephe	displayars arsens						Riecop Ab	11000
	(Wher Ephern Ab					Other	Piecop Ab	
Total no. of taxa	Total Retail	tive Alturatorice	Total no	o. of Taxa	CLI	Total Rel		bundance	5
Inchoptera:	bty/dropsychidae	Abi G.O			7 0	hironomidae (D) A		Asellus	-
and the same of	Proycentropodidae		Andumosvigu			Chionomus(D) A		Abna	15
	Rhyamobil							Pew (1-30)	
	Philopotamidae			Alacochis (G) Ab Angolus (G) Ab		Simulidae (D) Ab Dicceroste (D) Ab		Common	-
	Limnephilidae			(G) Ab		Tipulidae (D) A		(>20)	
	Sericostomatidas		Lumbaicula		Carr	otopogonidae (D) A	-	£ = 212)	
	Gossosomatica		Esecuela		1000	Other GOLD A	1	NOTE: A	neller
	Lesidostomatidas	Ab	Tubificidae			THE GOLD IN	-	must be	
	Other Trichopsera		-	110000	-	recorded		recorded	
Total no. of	7 Total Bess	The second second	Time!	FW. 1		Description of the last	11	absent if r	
Taxa	/ About		Total no. o	T 1 4000	Teta	of Retative Abundanc	2	STR. TOURS	

NOTE Bacts is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Bacts is not counted in SSRS. See Appendix 8 for more details on how to identify Bacts.

Step.1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.

