Slievemweel Commonage

2020 Ecological Survey

Final Report

20th April 2021

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1. Introduction

A baseline habitat condition and ecological survey and habitat management plan was prepared for the **Slievemweel** Commonage in 2020[1] and the measures within same underwent screening for Appropriate Assessment[2].

A Commonage Management group was established for the commonage and the implementation of the management prescriptions in the plan began in 2020.

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*** and **4030 Dry Heath** as well as protection of the existing acid grassland resource.

The major impacts on this hill arise from a legacy of years of uncontrolled burning which has damaged the heath habitats on the hill. As a result, the majority of the habitat areas on the hill are currently assessed as being in **Unfavourable Status.**

The extent of habitats present within the commonage and their affinities to either Fossitt (Level 3) or Annex I habitats on the Slievemweel 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** below and mapped on **Figure 4 (See Appendix 1).**

2. SUAS Vegetation Management Measures

The proposed management measures for the Slievemweel commonage in 2020 under SUAS were as follows:

Year 1 (2020)

1. Cut back self-seeded Sitka spruce trees in area 2
2. Use a bracken bruiser in area 5 and area 6, where it is accessible by a quad. Note-Care must be taken when using quad on rough or steep ground and obstacles should be marked in advance or by somebody walking in front of the quad. To be done in early-June and again in mid-August.
3. Cut gorse bushes in area14 with a tractor mounted mulcher. Large stones/rocks should be identified for contractor to prevent damage to machine. Cut gorse in area 3 if accessible by tractor, but do not cut the broadleaf trees growing there. Other areas of gorse that are easily accessible by tractor in areas on the south side of the commonage may also be mulched.
4. Individual or small clumps of gorse in area 5 may be control burned. This shall only be done during the legal burning period and shall be properly controlled as directed by the project manager. The project manager shall provide training, required equipment and personal protective equipment (PPE), and relevant notifications and permit applications shall be made in advance.

[1] Wilson, F. (2020). Ecological Baseline Survey prepared for Slievemweel Commonage as part of the Commonage Management Plan for SUAS. 15th July 2020. Unpublished report for SUAS EIP.

[2] Wilson, F. (2020). Report for Screening for Appropriate Assessment for a Commonage Management Plan at Slievemweel, Askanagap, Co. Wicklow in accordance with the requirements of Article 6(3) of the EU Habitats Directive. 7th September 2020. Unpublished report for SUAS EIP.

Year 2 (2021)

1. Use a bracken bruiser in area 5 and area 6, where it is accessible by a quad. Note-Care must be taken when using quad on rough or steep ground and obstacles should be marked in advance or by somebody walking in front of the quad. To be done in early-June and again in mid-August.
2. Cut the remaining Sitka spruce saplings & trees in area 2.
3. Individual or small clumps of gorse in area 5 may be control burned. This shall only be done during the legal burning period and shall be properly controlled as directed by the project manager. The project manager shall provide training, required equipment and personal protective equipment (PPE), and relevant notifications and permit applications shall be made in advance.
4. Areas of bracken that are inaccessible by bracken bruiser may be controlled by spraying. This shall be done using knapsack sprayers with Asulox herbicide and concentrated in areas when the bracken is spreading into heath habitat. A max of 1ha to be done in any one year.
5. Consider planting some broadleaf trees in area 16. These shall be native trees of local provenance, and details of planting plan shall be provided by ecologist/project manager.

Year 3 (2022)

1. To be reviewed at the end of Year 2

Shepherding

Average time per shepherding: 3 Hours

No of times sheep are to be shepherded: 2-3 Times per week from 1st April to 31st December

Identified objective of the shepherding;

- Stock to be encouraged into areas 1, 4 & 13, to get them to graze these areas.
- Monitor stock health, particularly 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:

- 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.

Grazing Management

In year 1, accurate records of stock actually grazing on the commonage shall be kept to determine what exactly is happening at present. From this, a detailed grazing plan shall be developed for future years.

Ecological Assessment

The commonage was surveyed in October 2020 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. 2020 Walkover Survey

The following observations, comments on same and recommendations on the works completed in 2020 are presented.

3.1 Bracken Control

Bracken control was due to be implemented in 2020 but the machine that was proposed for use with the bracken bruiser (a John Deere gator) was broken. This measure will be implemented in 2021.

3.2 Upland Gully Woodland Restoration/Native Woodland Establishment

The establishment of gully woodland along the two watercourses in the commonage through a variety of techniques is to be conducted in early 2021.

Another area of native woodland will be established in area 16 and additional planting should take place to increase the small stand of existing trees in the western side of the commonage in area 3. Gorse that has been removed from alongside the track here could be used to protect new planting from deer by encircling them to prevent access.

Gorse cut from area 14 could provide a similar function to close off/reduce access by deer from the commonage to the newly planted trees in area 16.

Exclosures (covering several square meters) should also be erected around existing isolated trees to allow natural regeneration to occur.

Plate 1. Restoration of native woodland habitat along the watercourses in the site will be completed in 2021.

Plate 2. Fencing around trees such as this will allow us to see if natural regeneration from this seed source can become established in the absence of grazing pressure.

3.3 Previously Burnt Areas

Areas of hillside and the ridge that were previously burnt are slowly beginning to revegetate. These are dominated by a low sward of ling heather of uniform height. In some parts both hare's tail and common cotton grass are beginning to get established alongside purple moor grass but cross leaved heath and *Sphagnum* moss cover remains very rare. There is occasional growth of bilberry but this is also sparse. There must be no further burning on the commonage.

Plate 3. Heather regrowth following burning on the ridge.

3.4 Acid Grassland Habitats

The areas of acid grassland within the commonage are overgrazed and stocking rates need to be reviewed and likely reduced.

Plate 4. Areas of grassland habitat are overgrazed on the hill.

3.5 Gorse Removal

Gorse removal was in progress during the site visit in Area 14.

This was being done manually with a chainsaw. Arisings from same could be useful to protect newly established woodland areas.

Plate 5. Gorse removal.

3.6 Sitka Spruce Removal

Sitka spruce has been removed from **Area 2,** which is very welcome**.**

3.7 Management for 2021

A review of the works which were proposed for 2020 in the plan, coupled with the outcomes from the 2020 walkover was conducted. Items highlighted in red have not been completed. This has informed the proposed works for 2021.

2020

Cut back self-seeded Sitka spruce trees in Area 2

Use a bracken bruiser in area 5 and area 6, where it is accessible by a quad. Note-Care must be taken when using quad on rough or steep ground and obstacles should be marked in advance or by somebody walking in front of the quad. To be done in early-June and again in mid-August.

Cut gorse bushes in Area 14 with a tractor mounted mulcher. Large stones/rocks should be identified for contractor to prevent damage to machine. Cut gorse in Area 3 if accessible by tractor, but do not cut the broadleaf trees growing there. Other areas of gorse that are easily accessible by tractor in areas on the south side of the commonage may also be mulched.

Individual or small clumps of gorse in area 5 may be control burned. This shall only be done during the legal burning period and shall be properly controlled as directed by the project manager. The project manager shall provide training, required equipment and personal protective equipment (PPE), and relevant notifications and permit applications shall be made in advance.

Works in red were not completed

2021

Use a bracken bruiser in Area 5 and Area 6, where it is accessible by a quad.

Note: Care must be taken when using quad on rough or steep ground and obstacles should be marked in advance or by somebody walking in front of the quad. To be done in early-June and again in mid-August.

Cut gorse bushes in Area 14 with a tractor mounted mulcher to allow better access through the hill. Retain areas of gorse surrounding the existing trees here to protect them from gazing animals.

Areas of bracken that are inaccessible by bracken bruiser may be controlled by spraying. This shall be done using knapsack sprayers with Asulox herbicide and concentrated in areas where the bracken is spreading into heath habitat such as Area 13. A max of 2ha to be done in any one year.

Individual or small clumps of gorse in Area 5 may be cut.

Plant at least 100 native broadleaf trees in Area 16 and along the watercourse in the gully on the east side of the commonage. These shall be native trees of local provenance, and details of planting plan shall be provided by ecologist/project manager.

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

Review stocking rates on the hill.

4. Appendix 1. Maps & Management Recommendations

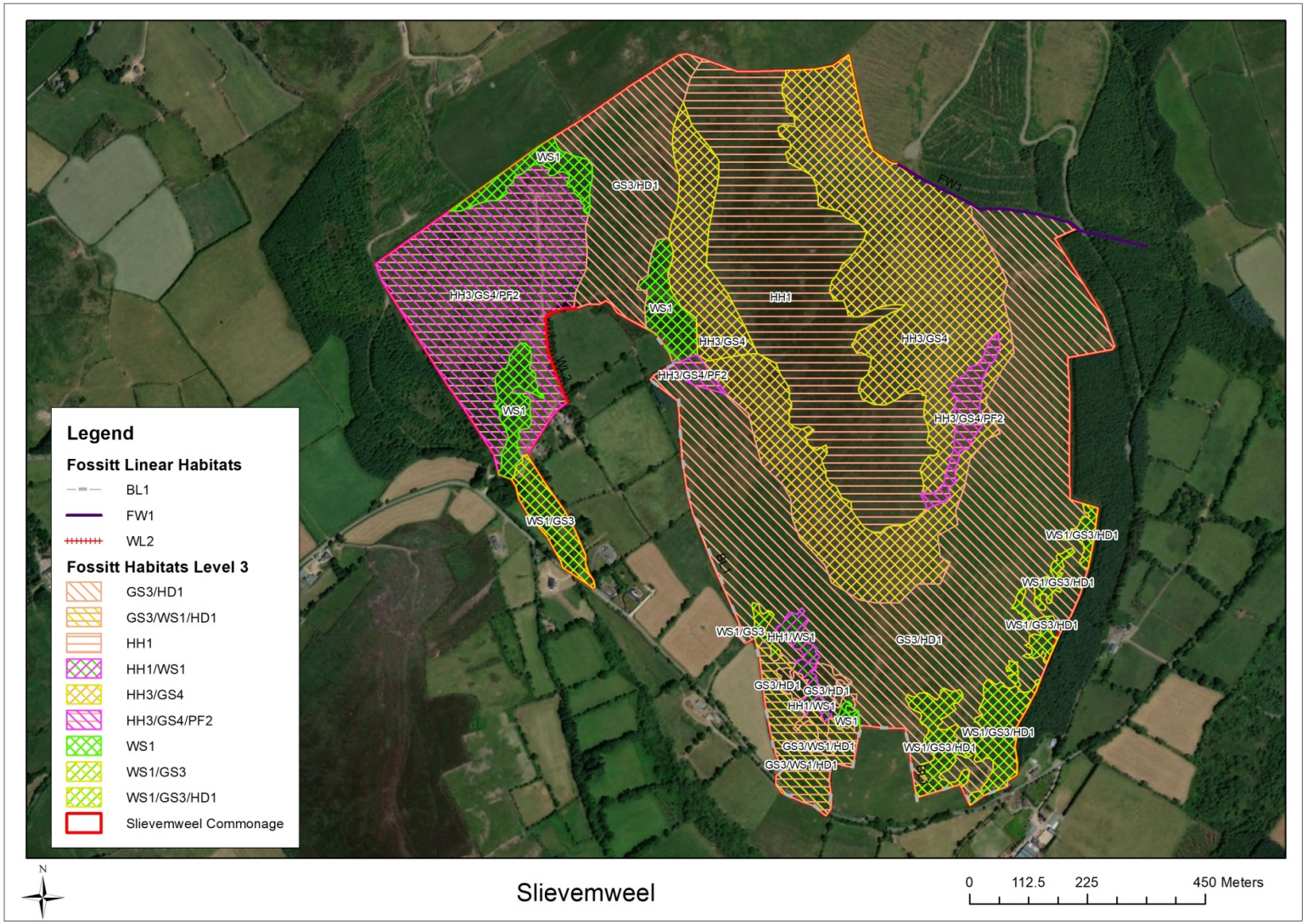


Figure 1. Habitats mapped to Level Three (Fossitt, 2000) within the Slievemweel commonage.

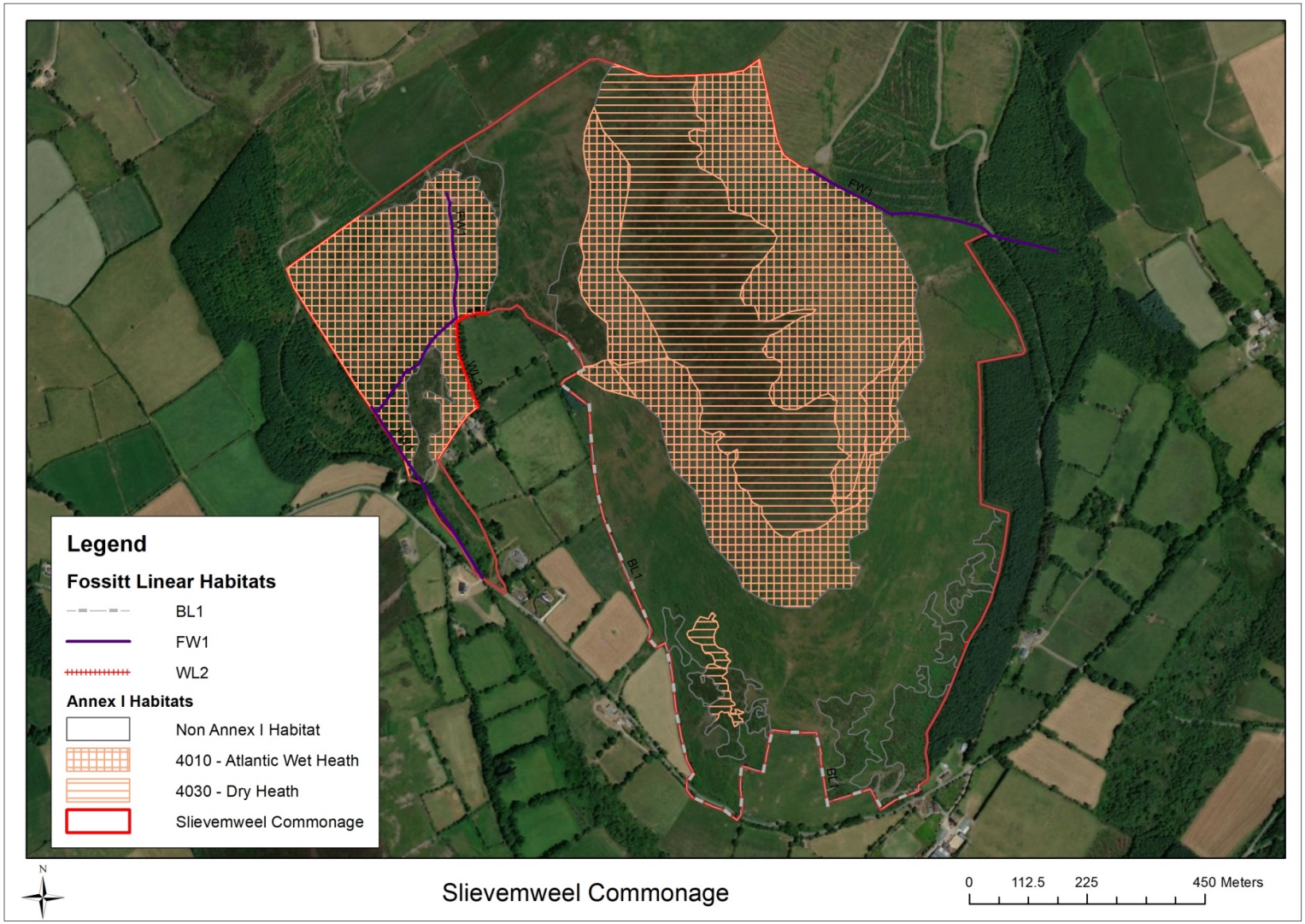


Figure 2. Habitats mapped according to their correspondence with Annex I habitats within the Slievemweel commonage.

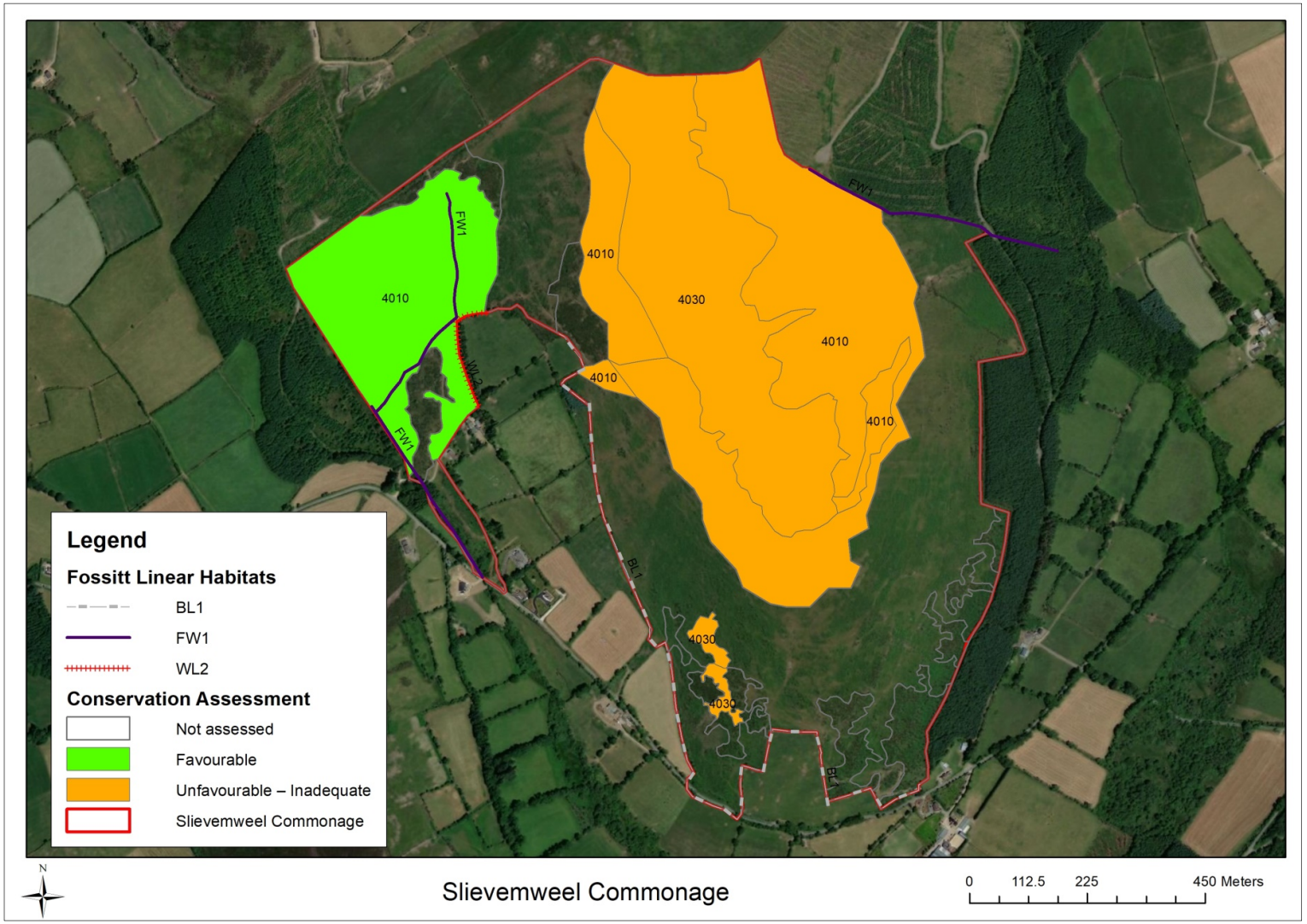


Figure 3. Habitat Condition Assessment for Slievemweel Commonage.

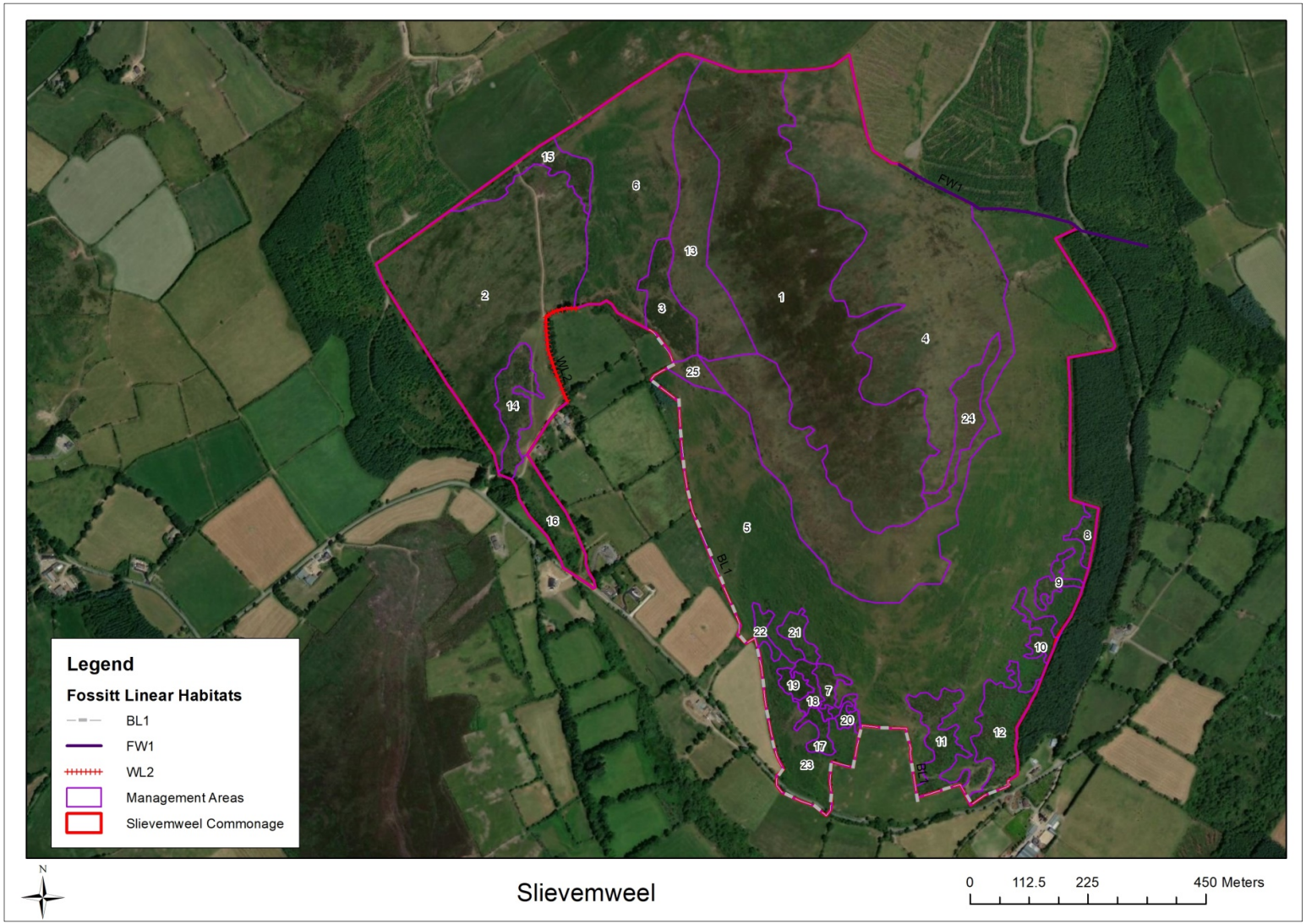


Figure 4. Management measures for Slievemweel.

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

Management Area	Fossitt Habitat Code	Habitat Description	Area (m2)	Management Measure
1	HH1	Dry heath	176803	No further burning Shepherding of stock on the hill
2	HH3/GS4/PF2	Wet heath/wet grassland/flush	121872	No further burning Shepherding of stock on the hill Establishment of native woodland along the watercourse
3	WS1	Gorse scrub	13670	This area has some emergent woodland developing. This should be retained and enhanced
4	HH3/GS4	Wet heath/wet grassland	226391	No further burning Shepherding of stock on the hill Establishment of native woodland along the watercourse
5	GS3/HD1	Acid grassland/dense bracken	311372	Bracken control Shepherding of stock on the hill Establishment of native woodland along the watercourse
6	GS3/HD1	Acid grassland/dense bracken	72213	Bracken control Shepherding of stock on the hill
7	GS3/HD1	Acid grassland/dense bracken	3853	Bracken control Shepherding of stock on the hill
8	WS1/GS3/HD1	Gorse scrub/acid grassland/bracken	3183	Bracken control Shepherding of stock on the hill
9	WS1/GS3/HD1	Gorse scrub/acid grassland/bracken	3488	Bracken control Gorse control/could consider establishment of native woodland
10	WS1/GS3/HD1	Gorse scrub/acid grassland/bracken	4325	Bracken control Gorse control/could consider establishment of native woodland
11	WS1/GS3/HD1	Gorse scrub/acid grassland/bracken	11833	Bracken control Gorse control/could consider establishment of native woodland
12	WS1/GS3/HD1	Gorse scrub/acid grassland/bracken	15857	Bracken control Gorse control/could consider establishment of native woodland
13	HH3/GS4	Wet heath/wet grassland	36442	No further burning Shepherding of stock on the hill
14	WS1	Gorse scrub	11555	Gorse control/could consider establishment of native woodland
15	WS1	Gorse scrub	11064	Gorse control/could consider establishment of native woodland
16	WS1/GS3	Gorse scrub/acid grassland	13006	Could consider establishment of native woodland

Management Area	Fossitt Habitat Code	Habitat Description	Area (m2)	Management Measure
17	GS3/WS1/HD1	Acid grassland/gorse/dense bracken	2994	Bracken control Gorse control?
18	HH1/WS1	Autumn gorse scrub	3438	No further burning Shepherding of stock on the hill
19	GS3/HD1	Acid grassland/dense bracken	2444	Bracken control
20	WS1	Gorse scrub/acid grassland	1600	Gorse control/could consider establishment of native woodland
21	HH1/WS1	Autumn gorse scrub	3626	No further burning Shepherding of stock on the hill
22	WS1/GS3	Gorse scrub/acid grassland/bracken	2361	Gorse control/could consider establishment of native woodland
23	GS3/WS1/HD1	Acid grassland/gorse/dense bracken	24484	Bracken control Gorse control/could consider establishment of native woodland
24	HH3/GS4/PF2	Wet heath/wet grassland/flush	11192	No further burning Shepherding of stock on the hill
25	HH3/GS4/PF2	Wet heath/wet grassland/flush	3587	No further burning Shepherding of stock on the hill

5. Appendix 2. Water Quality

The Slievemweel Stream, which is a tributary of the Coolballintaggart Stream rises within the commonage on the northern boundary of the commonage adjoining a forestry plantation. This stream flows south eastwards to join the Coolballintaggart Stream. The Askanagap Stream rises on the south-western side of the commonage. The Coolballintaggart Stream joins the Askanagap Stream (which is a tributary of the Derry Water) to the south east of the commonage. This tributary of the Derry Water River then joins the main channel of the Derry Water, which flows north easterly towards Aughrim Village.

Water samples were taken from two sampling locations one on the Slievemweel Stream and one on the Askanagap Stream as shown on **Figure 5** below.

The water samples were assessed by Carl Dixon and both of the headwater streams (SL1 and SL2) were assessed as a stream 'At Risk' of not achieving 'Good' water quality status.

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 Slievemweel.

SUAS Water Quality Sampling

River:	Code:	Date:	Sample Taken By:
Corndog Stream (Askanngap Stream 010)	IE_EA_10A060400 downstream Not coded - unnamed stream - not shown on EPA maps – near drinking water supply	10/03/2020	Faith Wilson
Sample Number:	**Location:**	**Stream Order:**	**Grid Reference:**
SL1	Near track entering the commonage – this stream then flows through cutover bog to the	1st order	T 04732 80529
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/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 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**
Stock Access:	**Sewage Fungus:**	**Sample Type (Mins): 4**	**Main Land Use Adjacent/Upstream:**
Deer	**None**	**Kick sample**	Pasture
Sheep	Present	Stone washing	**Bog**
Horses	Moderate	Weed sweep	Forestry
Cattle	Abundant		Tillage
			Urban
			Other

Plate 1. Photographic record of sampling location.

Slevem 1

River:	Code:	Date:	Time:
Station no.	**Location:**		**Grid (6 figure):**
	Stream Order:		**Stream flow:** Riffle / Riffle/Glide / Slow flow

Field Chemistry	
DO%	
DO mg/l	
Temp (°C)	
Conductivity	
pH	
Bank width (cm)	
Wet width (cm)	
Avg Depth (cm)	
Staff gauge	

Velocity	Colour
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	

Clarity	Discharge
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clean-Slight-Moderate-Heavy

Depth of mud: None: <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae: None – Present – Moderate - Abundant

Main land use u/s:
Pasture, Urban, Bog, Tillage, Forestry, Other

Sample retained: Y / N

Shading: High – Moderate – Low - None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus: None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x
Stone wash x
Weed sweep x

General Comments:

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:

- Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
- Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichoptera
- Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*
- Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

Ephemeroptera:		Plecoptera:	
Ecdyonurus Ab		*Leuctra* Ab	1
Rhithrogena Ab		*Isoperla* Ab	
Heptagenia Ab		*Protonemura* Ab	
Ephemerella Ab		*Amphinemura* Ab	
Caenis Ab		*Perla* Ab	
Paraleptophlebia Ab		*Dinocras* Ab	
Ephemera danica Ab		Other Plecop Ab	
Other Ephem Ab		Other Plecop Ab	
Total no. of taxa	0	**Total no. of Taxa**	1
Total Relative Abundance	0	**Total Relative Abundance**	1

Trichoptera:		G.OL.D:			
Hydropsychidae Ab		*Lymnaea* (G) Ab		Chironomidae (D) Ab	
Polycentropodidae Ab	1	*Potamopyrgus* (G) Ab		*Chironomus* (D) Ab	
Rhyacophila Ab		*Planorbis* (G) Ab		Simuliidae (D) Ab	
Philopotamidae Ab		*Ancylus* (G) Ab		*Dicranota* (D) Ab	
Limnephilidae Ab		*Physa* (G) Ab		Tipulidae (D) Ab	
Sericostomatidae Ab		*Lumbriculus* (OI) Ab		Ceratopogonidae (D) Ab	
Glossosomatidae Ab		*Eiseniella* (OI) Ab		Other GOLD Ab	
Lepidostomatidae Ab		Tubificidae (OI) Ab			
Other Trichoptera Ab					
Total no. of Taxa	1	**Total Relative Abundance**	1	**Total no. of Taxa**	3
				Total Relative Abundance	0

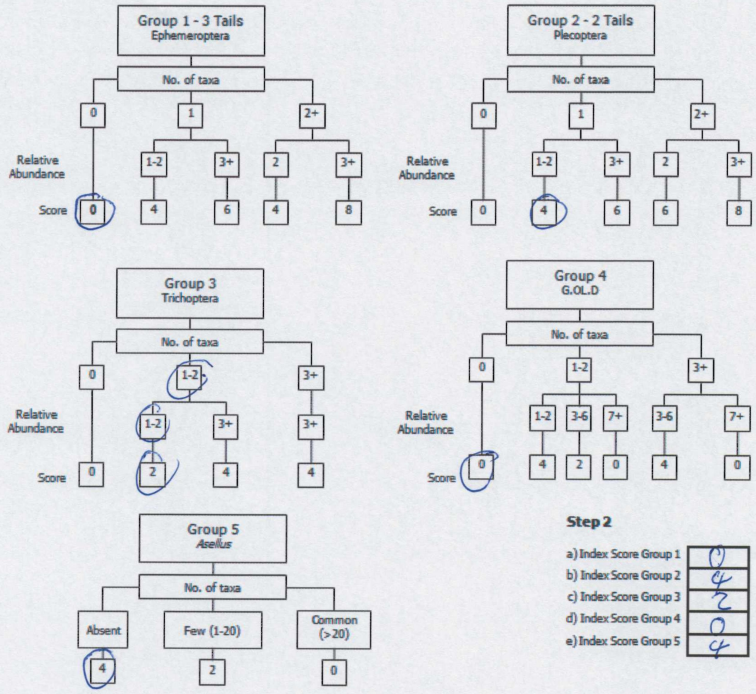
Asellus:	
Absent	✓
Few (1-20)	
Common (>20)	

NOTE: *Asellus* must be recorded as absent if none are found

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

Sieve 1

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.



Step 2

a) Index Score Group 1	0
b) Index Score Group 2	4
c) Index Score Group 3	2
d) Index Score Group 4	0
e) Index Score Group 5	4

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (~~a+b+c+d+e~~) 10

Average Index Score (AIS) TIS/5 (5 for 5 groups) 2

SSR Score (AIS x 2) 4

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk	> 6.5 – 7.25 Indeterminate Stream may be at risk	<6.5 Stream at risk
		✓

Surveyor (signed): _____ Name (print): CARL BUM Date: ____/____/____

SUAS Water Quality Sampling

River:	Code:	Date:	Sample Taken By:
Slievemweel Stream (Askanngap Stream 010)	IE_EA_10A060400	10/03/2020	Faith Wilson
Sample Number:	**Location:**	**Stream Order:**	**Grid Reference:**
SL2	Edge of commonage – adjoining the forestry	1st order	T 05552 80709
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/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 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**
Stock Access:	**Sewage Fungus:**	**Sample Type (Mins): 4**	**Main Land Use Adjacent/Upstream:**
Deer	**None**	**Kick sample**	Pasture
Sheep	Present	Stone washing	**Bog**
Horses	Moderate	Weed sweep	**Forestry**
Cattle	Abundant		Tillage
			Urban
			Other

Plate 1. Photographic record of sampling location.

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River:	Code:	Date:	Time:
Station no.	**Location:**		**Grid (6 figure):**
	Stream Order:		**Stream flow:** Riffle / Riffle/Glide / Slow flow

Field Chemistry	
DO%	
DO mg/l	
Temp (°C)	
Conductivity	
pH	
Bank width (cm)	
Wet width (cm)	
Avg Depth (cm)	
Staff gauge	
Velocity	**Colour**
Torrential	None
Fast	Slight
Moderate	Moderate
Slow	High
Very slow	
Clarity	**Discharge**
Very clear	Flood
Clear	Normal
Slightly turbid	Low
Highly turbid	Very Low
	Dry
	Recent Flood

Modifications: Y/N Canalised-widened-bank erosion-arterial drainage

Dominant Types:
Bedrock
Boulder (>128mm)
Cobble (32-128mm)
Gravel (8-32mm)
Fine Gravel (2-8mm)
Sand (0.25-2mm)
Silt (<0.25mm)

Slope: Low – Medium – High – Very High

Geology: Calcareous-Siliceous-Mixed

Substratum Condition: Calcareous-Compacted-Loose - Normal

Substratum: Stoney bottom-Muddy bottom-Mud over stones

Degree of siltation: Clean-Slight-Moderate-Heavy

Depth of mud: None: <1cm: 1-5cm: 5-10cm: >10cm

Litter: None – Present – Moderate - Abundant

Filamentous Algae: None – Present – Moderate - Abundant

Main land use u/s:
Pasture, Urban
Bog, Tillage
Forestry, Other

Sample retained: Y / N

Shading: High – Moderate – Low - None

Cattle access Y: upstream – downstream or N

Photo: Y / N

Sewage Fungus: None – Present – Moderate - Abundant

Sampled in Minutes:
Pond net x
Stone wash x
Weed sweep x

General Comments:

Macroinvertebrate Composition

The macroinvertebrates are divided into the following 5 specific groups:

- Group 1 = Ephemeroptera (3-tails) – note that tails may be damaged during sampling
- Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling
- Group 3 = Trichoptera
- Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera)
- Group 5 = *Asellus*
- Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab)

Relative Abundance	
1-5	1
6-20	2
21-50	3
51-100	4
101+	5

Ephemeroptera:		Plecoptera:	
Ecdyonurus Ab		*Leuctra* Ab	1
Rhithrogena Ab		*Isoperla* Ab	
Heptagenia Ab		*Protonemura* Ab	
Ephemerella Ab		*Amphinemura* Ab	
Caenis Ab		*Perla* Ab	
Paraleptophlebia Ab		*Dinocras* Ab	
Ephemera danica Ab		Other Plecop Ab	
Other Ephem Ab		Other Plecop Ab	
Total no. of taxa 0	**Total Relative Abundance** 0	**Total no. of Taxa** 1	**Total Relative Abundance** 1

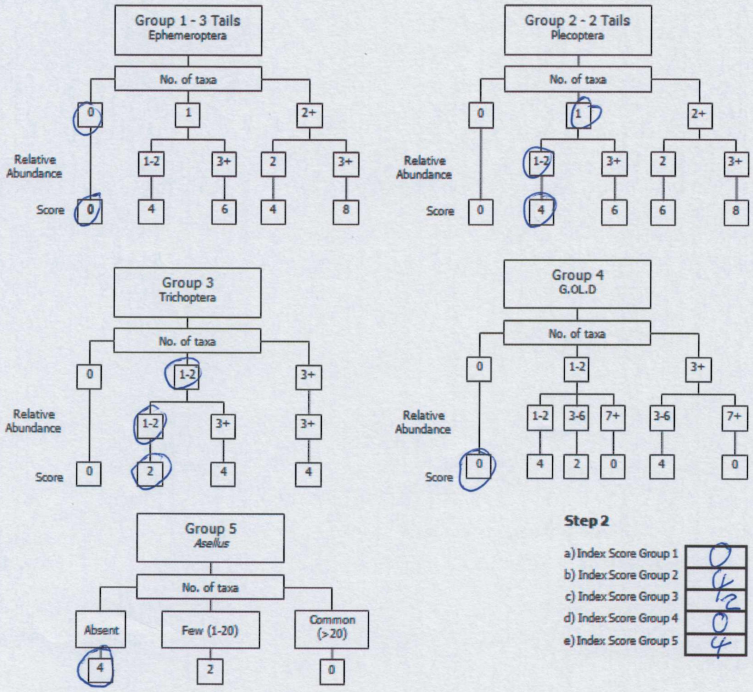
Trichoptera:		G.OL.D:				*Asellus*:	
Hydropsychidae Ab		*Lymnaea* (G) Ab		Chironomidae (D) Ab		Absent	✓
Polycentropodidae Ab	1	*Potamopyrgus* (G) Ab		*Chironomus* (D) Ab		Few (1-20)	
Rhyacophila Ab		*Planorbis* (G) Ab		Simulidae (D) Ab		Common (>20)	
Philopotamidae Ab		*Ancylus* (G) Ab		*Dicranota* (D) Ab			
Limnephilidae Ab		*Physa* (G) Ab		Tipulidae (D) Ab			
Sericostomatidae Ab		*Lumbriculus* (Ol) Ab		Ceratopogonidae (D) Ab			
Glossosomatidae Ab		*Eiseniella* (Ol) Ab		Other GOLD Ab			
Lepidostomatidae Ab		Tubificidae (Ol) Ab					
Other Trichoptera Ab							
Total no. of Taxa 1	**Total Relative Abundance** 1	**Total no. of Taxa** 0		**Total Relative Abundance** 0			

NOTE: *Asellus* must be recorded as absent if none are found

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

Sieve 2

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.



Step 2

a) Index Score Group 1	0
b) Index Score Group 2	4
c) Index Score Group 3	2
d) Index Score Group 4	0
e) Index Score Group 5	4

Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) sum (~~a+b+c+d+e~~) 10

Average Index Score (AIS) TIS/5 (5 for 5 groups) 2

SSR Score (AIS x 2) 4

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk	> 6.5 – 7.25 Indeterminate Stream may be at risk	<6.5 Stream at risk
		✓

Surveyor (signed): _____ Name (print): CAM DIXON Date: ___/___/___