

Appendix B

Galway City Transport Project –
Assessment of Annex I habitats
in the Ballygarraun survey area
(Perrin, 2014)

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N6 Galway City Transport Project

ASSESSMENT OF ANNEX I HABITATS IN
THE BALLYGARRAUN AREA

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DOCUMENT CONTROL SHEET

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Background

During the 2013 survey for the N6 Galway City Transport Project, habitats were mapped at a number of locations in or near the townland of Ballygarraun, north of the city. These were locations where limestone pavement had previously been identified by R. Goodwillie. This work constituted part of Stage 3 in Perrin *et al.* (2013). No constraints (e.g. bad weather, restricted access) were encountered during the survey. In total, six relevés (plots for quantitative vegetation cover data) were recorded in Annex I habitats at these locations. Due to the abrupt curtailment of the 2013 survey project, no assessment of these habitats or relevés was made in Perrin *et al.* (2013). They are assessed in this short report using the standard parameters for Annex I habitats of area, structure and functions and future prospects. Each of these parameters is addressed in turn and then combined to form an overall assessment.

Annex I habitats

Three Annex I habitats were recorded in the Ballygarraun area: 4060 Alpine and Boreal heaths, 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*), and *8240 Limestone pavement (Table 1). These habitats are shown in Figure 1. Habitat 4060, which was represented by the lowland *Dryas octopetala* community, covered only a few square metres and was not assessed.

Area

This parameter assesses whether there have been any recent losses in habitat extent. An examination of Google Maps remote imagery from 2003-2012 indicates that there has been no significant change in either of the two Annex I habitats assessed, habitat *8240 and habitat 6210. They are therefore assessed as *Favourable*.

Structure and functions

This parameter assesses the condition of the habitats. Six relevés were recorded, two in habitat 6210 and four in habitat *8240. The locations of these relevés are shown in Figure 2. Full details of these relevés are included in Appendix 1. Habitat 6210 was assessed using the criteria of O'Neill *et al.* (2013). Habitat *8240 was assessed using the criteria of Wilson & Fernández (2013); all *8240 relevés were recorded on exposed limestone pavement. Relevés passed or failed depending on whether they achieved the relevant target for each criterion (e.g., number of indicator species, sward height). One of the 6210 relevés and two of the *8240 relevés passed the assessment (Table 2), both thus only achieving a 50% pass rate, which gives an assessment of *Unfavourable – Bad*. Scrub encroachment appears to be an issue in areas of *8240 habitat.

Future prospects

This parameter assesses impacts on the habitats and whether the long-term viability of the habitats is assured. Impacts on these Annex I habitats are assessed in Table 3 using the standard codes of Ssymank (2011). The most eastern of the locations surveyed in this area, near Brockagh, is very lightly grazed, mostly by horses. Habitat *8240 occurs here, and scrub is encroaching on the small areas of exposed limestone pavement. The location east of the Roadstone quarry, at Two Mile Ditch, has both Annex I habitats *8240 and 6210, and is grazed by cattle, which access both the open and wooded areas. There is some suggestion of impact from grazing on sward composition in the grassland patches here. The locations northwest of the quarry, at Ballygarraun, are divided by stone walls. The area to the north here appears to be grazed by cattle, whilst the area to the south is

grazed by a donkey. There is scrub and bracken encroachment on the limestone pavement in the latter area. Future prospects for habitat 6210 were assessed as *Favourable*, while habitat *8240 was assessed as *Unfavourable – Inadequate* due to scrub encroachment.

Overall assessment

The overall assessments are presented in Table 4. It is important to note that an overall assessment of *Unfavourable – Bad* does not imply that the habitat is of low conservation value, but that it is in need of improved management.

Table 1. Area (ha) of Annex I habitats in the Ballygarraun area divided into relevant habitat categories of Fossitt (2000).

Annex I Habitat	Fossitt habitat category						Total
	HH4 Montane heath	ER2 Exposed calcareous rock	GS1 Dry calcareous and neutral grassland	WN2 Oak-ash- hazel woodland	WS1 Scrub	WN2/WS1 Oak-ash- hazel woodland/ Scrub	
4060	<0.01	0.00	0.00	0.00	0.00	0.00	<0.01
6210	0.00	0.00	0.27	0.00	0.00	0.00	0.27
All *8240	0.00	3.08	0.00	0.00	0.32	0.99	4.40
Part *8240	0.00	0.00	0.00	2.46	0.04	3.70	6.20
<i>Total</i>	<i>0.00</i>	<i>3.08</i>	<i>0.27</i>	<i>2.46</i>	<i>0.36</i>	<i>4.69</i>	<i>10.87</i>

Table 2. Criteria and assessment of relevés in Annex I habitats in the Ballygarraun area.

Criteria – Habitat 6210	Relevé 38	Relevé 41	Criteria - Habitat *8240 (Exposed)	Relevé 36	Relevé 37	Relevé 39	Relevé 40
Total number positives	Pass	Pass	Total number positives	Pass	Pass	Pass	Pass
Total number HQ	Pass	Pass	Total cover negatives	Fail	Pass	Pass	Fail
Cover non-natives	Pass	Pass	Total cover bracken	Pass	Pass	Pass	Fail
Cover negatives individually	Pass	Pass	Total cover non-natives	Pass	Pass	Pass	Pass
Cover negatives collectively	Pass	Pass	Total cover scrub	Pass	Pass	Pass	Fail
Cover scrub/bracken/heath	Pass	Pass					
*Forb component 40-90%	Fail	Pass					
Sward height	Pass	Pass					
Litter cover	Pass	Pass					
Cover bare soil	Pass	Pass					
Grazing/Disturbance	Pass	Pass					
Overall result	Fail	Pass		Fail	Pass	Pass	Fail

*A forb is a herbaceous flowering plant that is not a graminoid (grass, sedge or rush)

Table 3. Assessment of impacts on Annex I habitats in the Ballygarraun area.

Annex I habitat	Impact code	Impact description	Intensity	Impact type	Proportion of habitat
6210	A04.02.03	Non-intensive horse grazing	Low	Positive	~93%
6210	A04.02.01	Non-intensive cattle grazing	Medium	Negative	~7%
*8240	A04.02.03	Non-intensive horse grazing	Low	Positive	~45%
*8240	A04.02.01	Non-intensive cattle grazing	Low	Positive	~55%
*8240	K02.01	Species composition change (succession)	Medium	Negative	~10%

Table 4. Overall assessment of Annex I habitats in the Ballygarraun area.

Annex I habitat	Area	Structure and functions	Future prospects	Overall assessment
6210	Favourable	Unfavourable - Bad	Favourable	Unfavourable - Bad
*8240	Favourable	Unfavourable - Bad	Unfavourable - Inadequate	Unfavourable - Bad

References

- Perrin, P.M., Barron, S.J., Martin, J.R. & O'Neill, F.H. (2013) Galway City Outer Bypass habitat mapping and assessment. Unpublished report by BEC Consultants Ltd. for Arup/Scott Cawley.
- Ssymank, A. (2011) Reference list threats, pressures and activities (final version). http://circa.europa.eu/Public/irc/env/monnat/library?l=/expert_reporting/workpackage_revision/subgroup_papers/pressures_threats&vm=detailed&sb=Title. Accessed 1/11/2011.

Figure 1. Ballygarraun area Annex I habitat map



Figure 2. Ballygarraun area relevé locations.
(Relevé numbers shown correspond to those used in Appendix 1.)



Appendix 1: Relevé data from Ballygarraun

Relevé no.	36	37	39	40	38	41
Plot name	Ballygarraun1	Ballygarraun2	Ballygarraun4	Ballygarraun5	Ballygarraun3	Ballygarraun6
Recorders	JM/FD	JM/FD	FD/JM	FD/JM	PP/JM	FD/JM
Date recorded	17/09/2013	17/09/2013	17/09/2013	17/09/2013	17/09/2013	17/09/2013
ITM grid ref.	534549_728773	533795_729373	532162_729533	532345_729379	533805_729392	532223_729378
Habitat code	ER2	ER2	ER2	WS1	GS1	GS1
Annex I code	*8240	*8240	*8240	*8240	6210	6210
Topography	Flat	Flat	Flat	Flat	Mid-slope	Flat
Slope (degrees)	0	2	0	0	10	0
Aspect	None	None	None	None	North	None
Soil type	Rendzina	None	None	None	Well-drained mineral	Well-drained mineral
Bare soil	0	0	0	0	0	3
Bare rock	65	85	80	35	0	3
Litter cover	3	10	1	20	1	3
Moss cover	15	1	1	7	40	7
Field cover	35	15	3	40	10	95
Herb cover	10	7	2	5	35	60
Forb:grass proportion	10:15	7:15	2:0	5:10	35:85	60:55
Grass height (cm)	7	13	0	15	11	7
Herb height (cm)	6	7	10	12	4	3
<i>Achillea millefolium</i>	-	-	-	-	-	0.3
<i>Agrostis capillaris</i>	0.3	-	-	-	1	-
<i>Agrostis vinealis</i>	0.3	-	-	-	1	-
<i>Anthoxanthum odoratum</i>	0.5	-	-	-	5	-
<i>Asplenium ruta-muraria</i>	1	0.3	0.7	0.3	-	-
<i>Asplenium trichomanes</i>	0.5	-	-	-	-	-
<i>Brachypodium sylvaticum</i>	-	-	-	0.3	-	-
<i>Briza media</i>	-	-	-	-	0.3	7
<i>Calliergonella cuspidata</i>	-	-	-	-	40	-
<i>Campanula rotundifolia</i>	-	-	-	-	0.3	0.1
<i>Campyllum stellatum</i> v. <i>protensum</i>	0.1	-	-	-	-	0.5
<i>Campylopus atrovirens</i>	-	0.3	-	-	-	-
<i>Carex flacca</i>	7	10	-	3	7	3
<i>Carex panicea</i>	-	3	-	-	3	-
<i>Carlina vulgaris</i>	-	-	-	0.1	-	-
<i>Centaurea nigra</i>	-	-	-	-	25	15
<i>Ceterach officinarum</i>	1	-	0.1	-	-	-
<i>Cladonia</i> species	-	-	-	-	-	0.1
<i>Corylus avellana</i>	-	10	3	45	-	-
<i>Crataegus monogyna</i>	-	0.1	-	-	-	-
<i>Crepis capillaris</i>	0.3	-	-	-	-	-
<i>Ctenidium molluscum</i>	7	-	-	1	-	-
<i>Cynosurus cristatus</i>	-	-	-	-	20	1
<i>Dactylis glomerata</i>	-	-	-	-	7	3
<i>Dryopteris filix-mas</i>	0.1	-	-	-	-	-
<i>Encalypta streptocarpa</i>	0.3	-	-	-	-	-
<i>Festuca ovina</i>	-	-	-	0.5	-	35
<i>Festuca rubra</i>	-	-	-	-	50	-
<i>Fissidens dubius</i>	0.3	0.3	0.5	0.3	-	-
<i>Fragaria vesca</i>	3	-	-	-	-	-
<i>Galium verum</i>	-	-	-	-	0.5	1
<i>Geranium robertianum</i>	0.5	-	0.3	-	-	-
<i>Grimmia pulvinata</i>	0.1	-	-	-	-	-
<i>Hedera helix</i>	-	1	5	0.5	-	-
<i>Hypericum pulchrum</i>	0.3	-	-	-	-	-
<i>Hypochaeris radicata</i>	3	-	0.1	-	0.3	1

Appendix 1 (continued)

Relevé no.	36	37	39	40	38	41
Plot name	Ballygarraun1	Ballygarraun2	Ballygarraun4	Ballygarraun5	Ballygarraun3	Ballygarraun6
<i>Leontodon autumnalis</i>	-	-	-	-	-	0.5
<i>Leucanthemum vulgare</i>	-	-	-	-	0.7	1
<i>Linum catharticum</i>	-	-	-	0.3	0.1	-
<i>Lotus corniculatus</i>	-	-	-	3	3	20
<i>Mycelis muralis</i>	0.7	0.3	0.5	-	-	-
<i>Neckera crispa</i>	0.3	-	-	5	-	-
<i>Phyllitis scolopendrium</i>	0.3	-	-	-	-	-
<i>Pilosella officinarum</i>	3	0.7	-	0.3	0.5	3
<i>Plagiomnium affine</i>	-	-	-	-	0.1	-
<i>Plantago lanceolata</i>	-	-	-	-	3	1
<i>Plantago maritima</i>	-	-	-	-	-	3
<i>Polygala vulgaris</i>	0.1	-	-	0.3	0.1	0.1
<i>Potentilla erecta</i>	-	-	-	-	1	-
<i>Prunella vulgaris</i>	0.3	-	-	-	0.3	0.3
<i>Prunus spinosa</i>	-	-	5	5	-	-
<i>Pteridium aquilinum</i>	-	-	-	20	-	-
<i>Ranunculus acris</i>	-	-	-	-	0.1	0.1
<i>Rosa spinosissima</i>	0.3	3	5	-	0.1	-
<i>Rubia peregrina</i>	-	-	-	0.3	-	-
<i>Rubus fruticosus</i> agg.	7	0.5	-	30	0.7	-
<i>Scapania aspera</i>	0.1	-	-	-	-	-
<i>Scleropodium purum</i>	-	-	-	-	0.5	7
<i>Senecio jacobaea</i>	-	0.3	0.1	-	-	-
<i>Sesleria caerulea</i>	7	0.3	-	7	-	10
<i>Sonchus arvensis</i>	0.5	-	-	-	-	-
<i>Sonchus asper</i>	-	0.3	-	-	-	0.1
<i>Succisa pratensis</i>	-	-	-	0.3	0.3	5
<i>Taraxacum officinale</i>	0.5	-	-	0.3	0.5	-
<i>Teucrium scorodonia</i>	1	5	1	0.3	-	-
<i>Thymus polytrichus</i>	-	0.3	-	-	-	-
<i>Tortella nitida</i>	-	0.3	-	-	-	-
<i>Tortella tortuosa</i>	3	0.3	0.5	0.3	-	-
<i>Trifolium pratense</i>	-	-	-	-	0.3	7
<i>Trifolium repens</i>	-	-	-	-	1	5
<i>Ulex europaeus</i>	10	-	-	-	-	-
<i>Veronica chamaedrys</i>	-	-	-	-	0.3	-
<i>Weissia species</i>	-	-	-	-	-	0.3



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